THE Journal OF THE Kansas Medical Society

NOVEMBER
1958

VOL LIX
NO XI

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REFERENCES: (1) Royer, A., in Welch, H., & Martí-Ibañez, F.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 783. (2) Waisbren, B. A., & Strelitzer, C. L.: *Arch. Int. Med.* **101**:397, 1958. (3) Koch, R., & Donnell, G.: *California Med.* **87**:313, 1957. (4) Roy, T. E.; Collins, A. M.; Craig, G., & Duncan, I. B. R.: *Canad. M. A. J.* **77**:844, 1957. (5) Cooper, M. L., & Keller, H. M.: *J. Dis. Child.* **95**:245, 1958. (6) Caswell, H. T., *et al.*: *Surg., Gynec. & Obst.* **106**:1, 1958. (7) Brown, J. V.; Sedwitz, J. L., & Hanner, J. M.: *U. S. Armed Forces M. J.*: **9**:161, 1958. (8) Sarason, E. L., & Bauman, S.: *Surg., Gynec. & Obst.* **105**:224, 1957.

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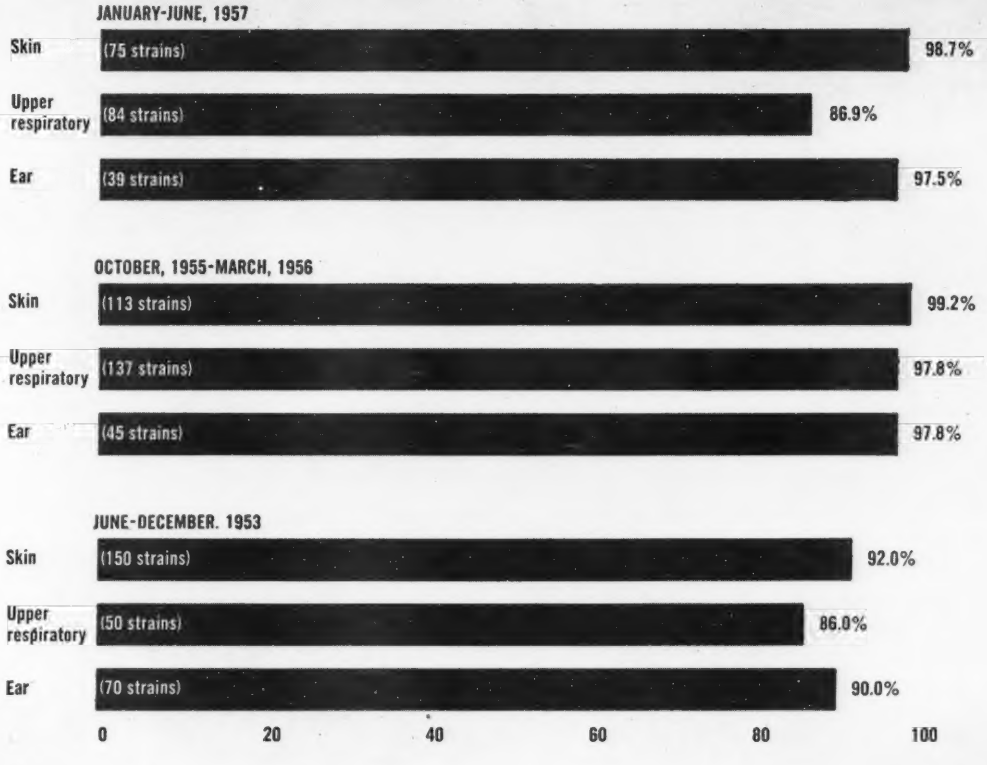

*Adapted from Royer.[1]

36258

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY

Volume LIX NOVEMBER, 1958 Number 11

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(1) Hagedorn, A. B.: Proc. Staff Meet. Mayo Clin. 32:705 (Dec. 11) 1957.
(2) Best, W. R.; Louis, J., and Limarzi, L. R.: M. Clin. North America (Jan.) 1958, p. 3.

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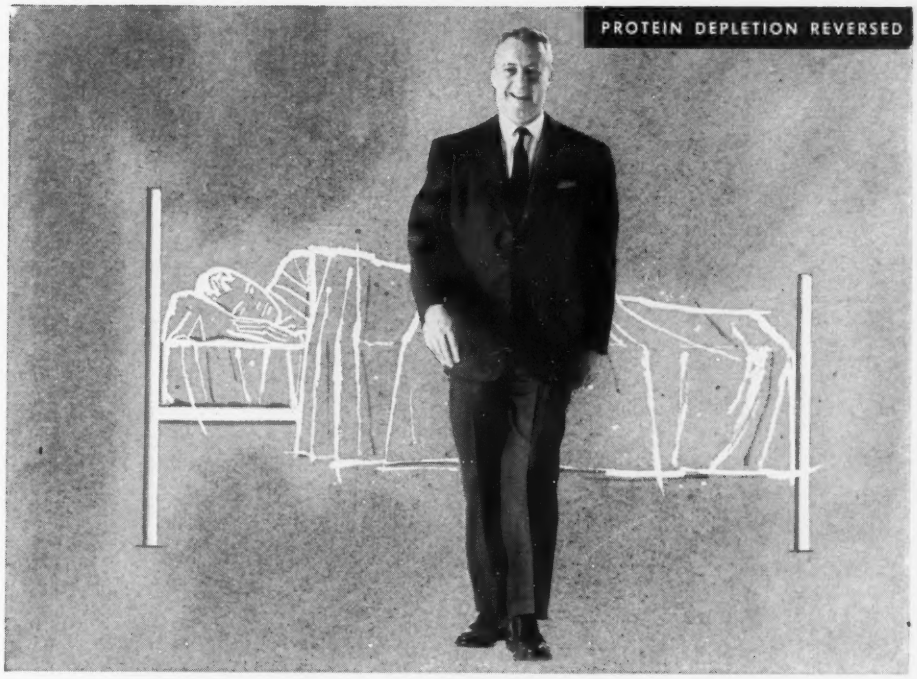

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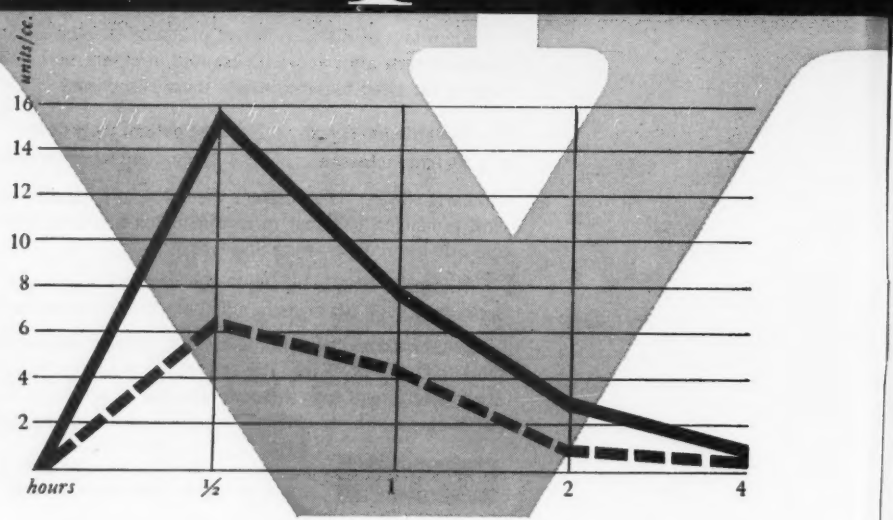

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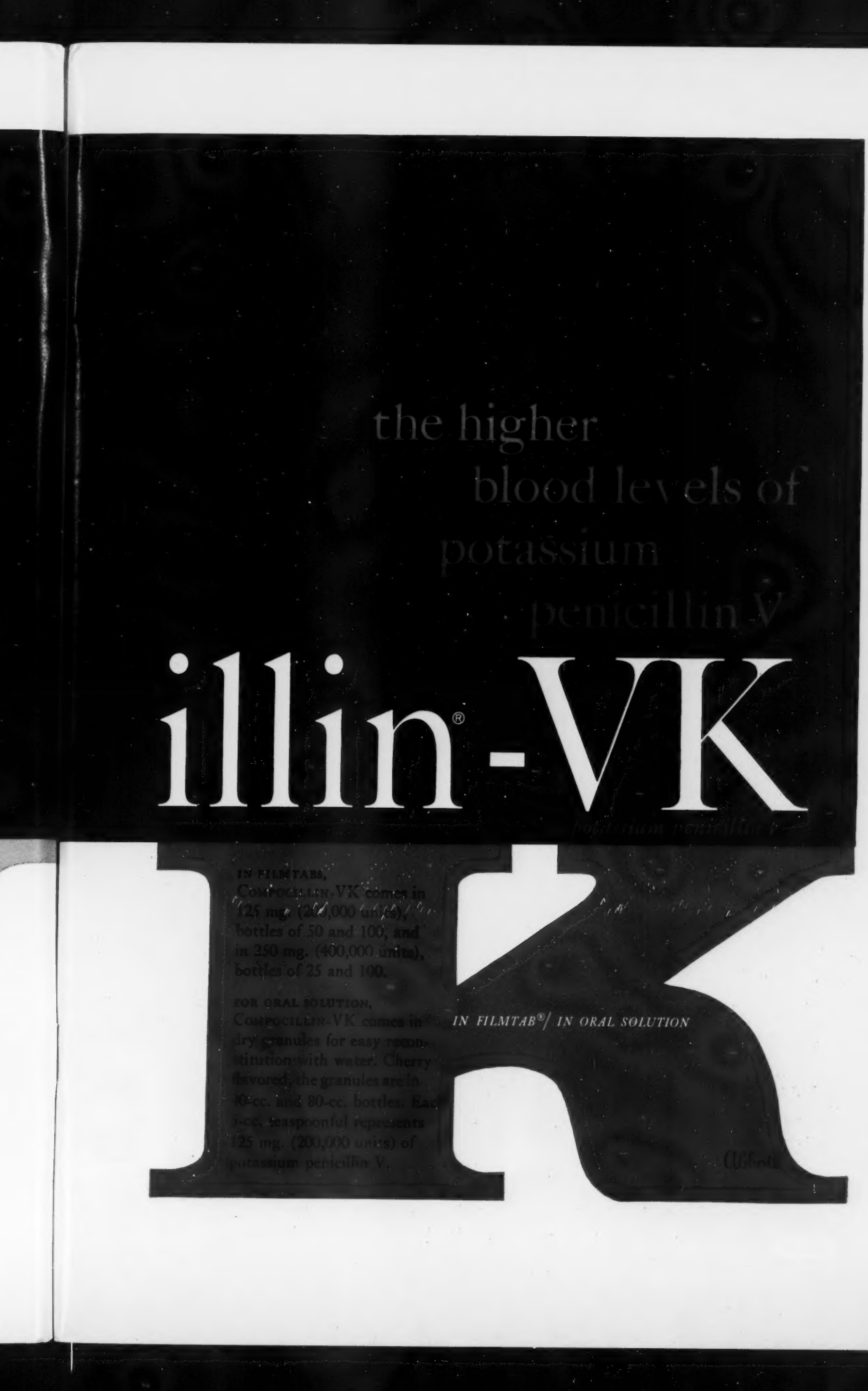
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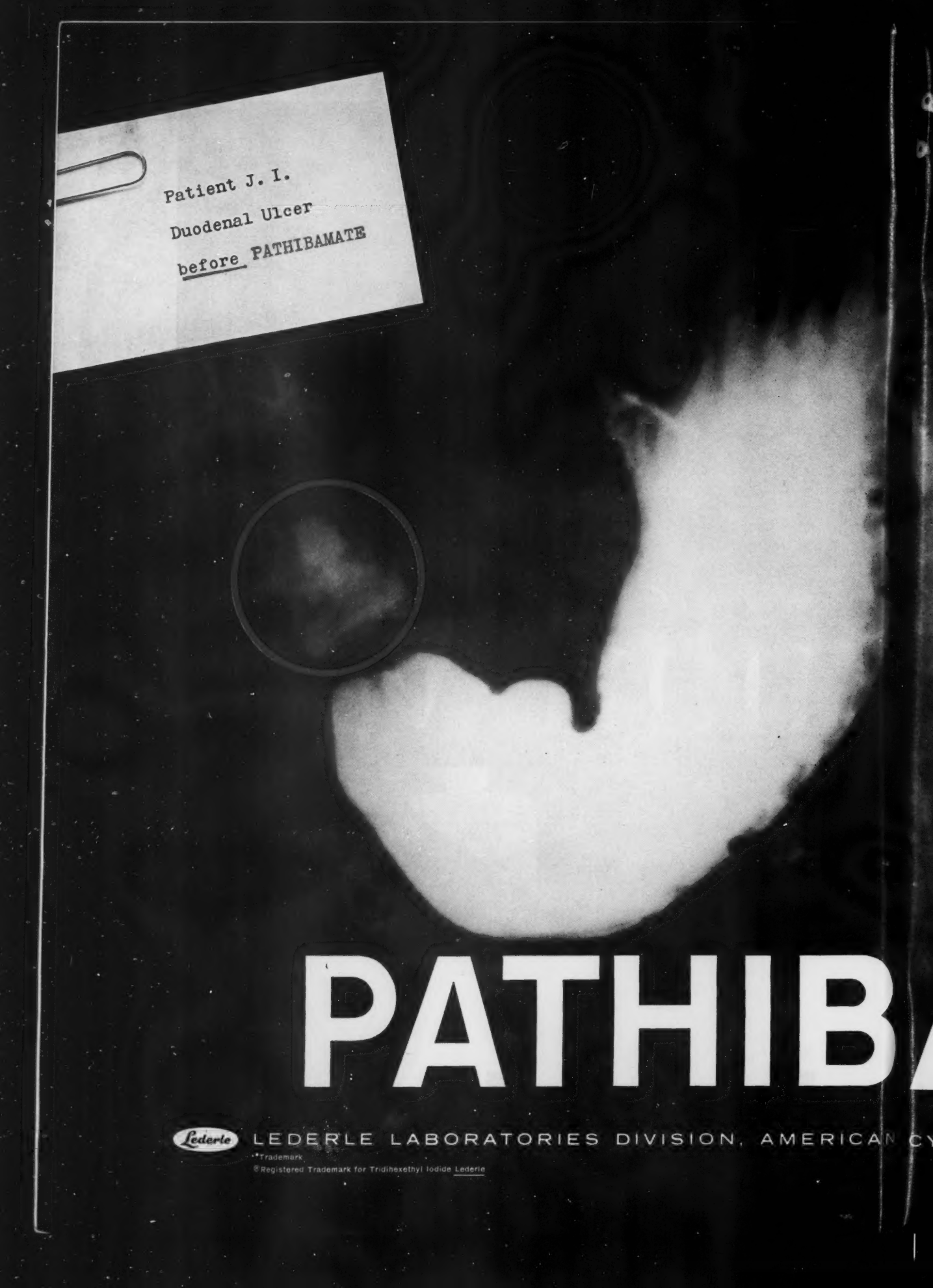
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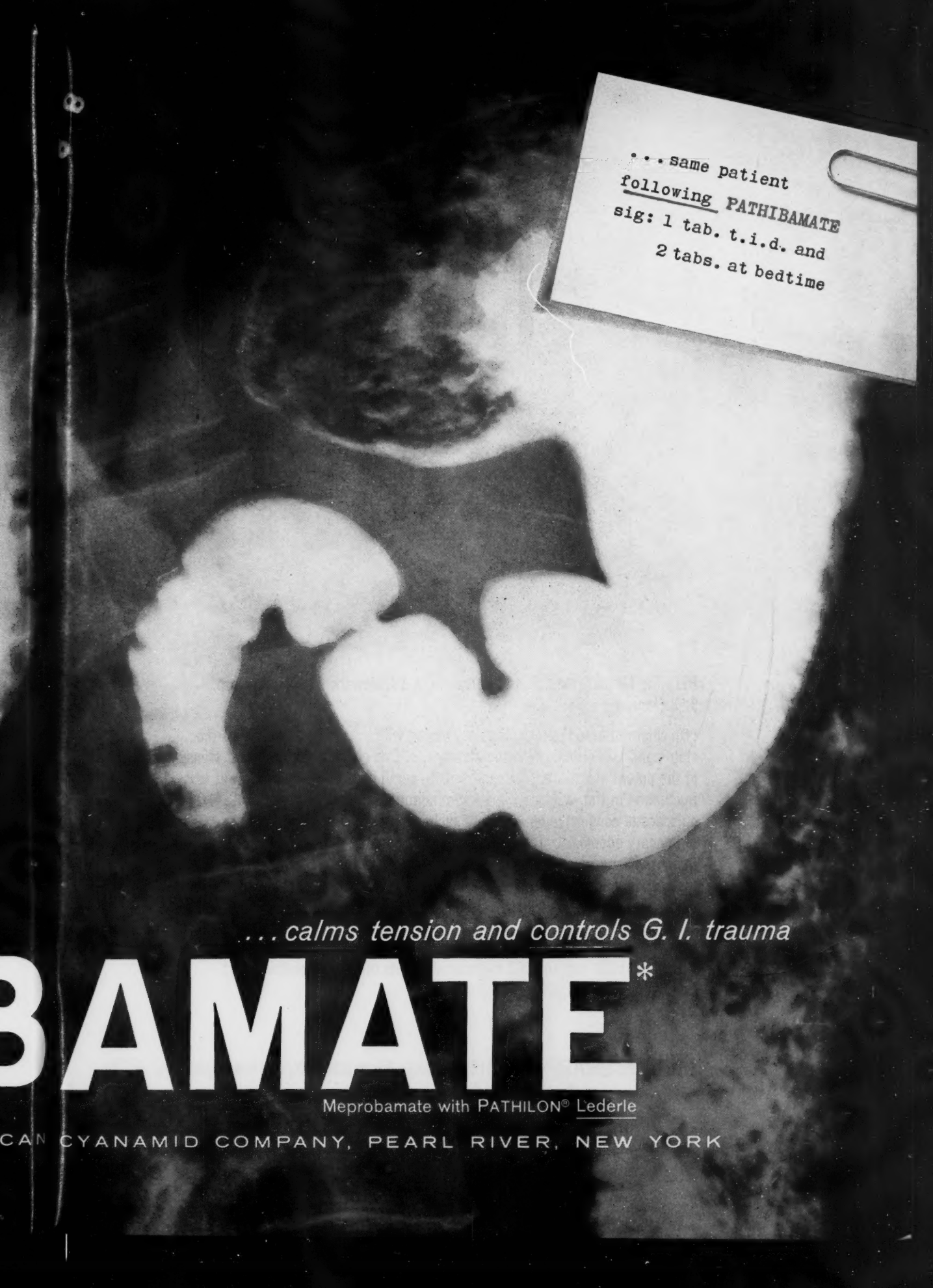
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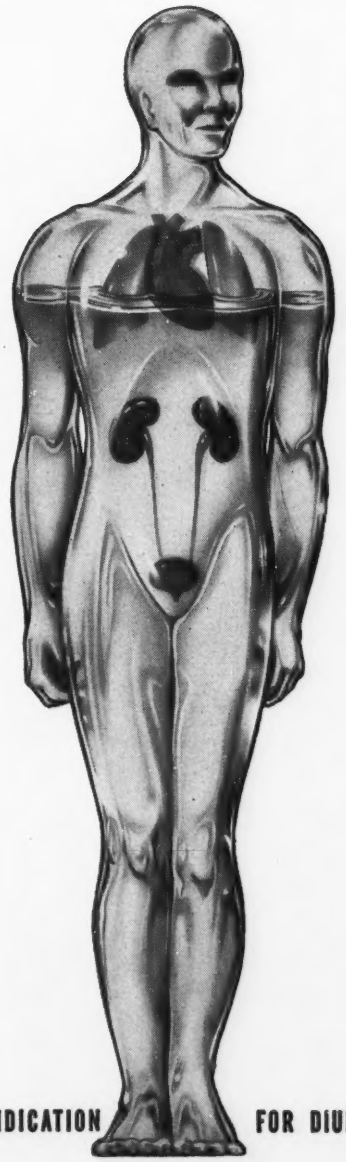

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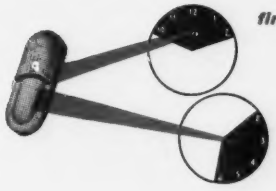

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PUBLISHED REFERENCES: 1. Carpenter, E. B.: Southern Medical Journal 51:627, 1958. 2. Forsyth, H. F.: J.A.M.A. 167:163, 1958. 3. Little, J. M., and Truitt, E. B., Jr.: J. Pharm. & Exper. Therap. 119:161, 1957. 4. Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: J. Am. Pharm. Assn., Sci. Ed. 46:374, 1957. 5. O'Doherty, D. S., and Shields, C. D.: J.A.M.A. 167:160, 1958. 6. Park, H. W.: J.A.M.A. 167:166, 1958. 7. Truitt, E. B., Jr., and Patterson, R. B., Proc. Soc. Exper. Bio. & Med. 95:422, 1957. 8. Truitt, E. B., Jr., Patterson, R. B., Morgan, A. M., and Little, J. M.: J. Pharm. & Exper. Therap. 119:180, 1957.

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CONDITION	NO. PATIENTS	RESPONSE			
		"marked"	moderate	slight	none
STUDY 1[1]					
Skeletal muscle spasm secondary to acute trauma	33	26	6	1	—
STUDY 2[2]		"pronounced"			
Herniated disc	39	25	13	—	1
Ligamentous strains	8	4	4	—	—
Torticollis	3	3	—	—	—
Whiplash injury	3	2	1	—	—
Contusions, fractures, and muscle soreness due to accidents	5	3	2	—	—
STUDY 3[5]		"excellent"			
Herniated disc	8	6	2	—	—
Acute fibromyositis	8	8	—	—	—
Torticollis	1	—	—	1	—
STUDY 4[6]		"significant"			
Pyramidal tract and acute myalgic disorders	30	27	—	2	1
TOTALS	138	104 (75.3%)	28 (20.3%)	4	2

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Improved	28 (13%)	8 (5%)	7 (9%)
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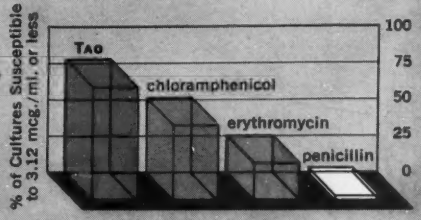
Types of infecting organisms: The majority of identified etiologic microorganisms were Staph. aureus and Staph. albus. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, Hemophilus influenzae.

even against resistant staph[1,2] . . .

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.[1]



well tolerated . . .

REACTIONS: (a) adults	(b) children
Total—9.2% (20 out of 217)	Total—0.6% (1 out of 167)
Skin rash—1.4% (3 out of 217)	Skin rash—none
Gastrointestinal—7.8% (17 out of 217)	Gastrointestinal—0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus . . . stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation.

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References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 478.

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WHOLE MILK FORMULAS

Age Months	Whole Milk Fluid Oz.	Water Oz.	Karo Syrup Tbsp.	Each Feeding Oz.	Number of Feedings in 24 Hours	Total Calories
Birth	10	10	2	3	6	320
1	12	13	3	4	6	532
2	15	13	3	4½	6	480
3	17	9	3	5	5	520
4	20	11	3½	6	5	610
5	23	11	4	6½	5	700
6	26	10	4	7	5	760
7	28	11	3	7½	5	740
8	30	11	2½	8	5	750
10	32	9	2	8	5	760
12	32	9	0	8	5	640

EVAPORATED MILK FORMULAS

Age Months	Evaporated Milk Fluid Oz.	Water Oz.	Karo Syrup Tbsp.	Each Feeding Oz.	Number of Feedings in 24 Hours	Total Calories
Birth	6	12	2	3	6	380
1	8	16	3	4	6	532
2	9	14	3	4½	5	576
3	10	15	3½	5	5	650
4	12	18	4	6	5	768
5	12	21	4	6½	5	768
6	13	22	4	7	5	812
7	14	21	3	7	5	796
8	15	20	2	7	5	780
10	16	16	1	8	4	764
12	16	16	0	8	4	704

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2. Baird, H. W., III: A comparison of Meprospan (sustained action meprobamate capsule) with other tranquilizing and relaxing agents in children. Submitted for publication, 1958.

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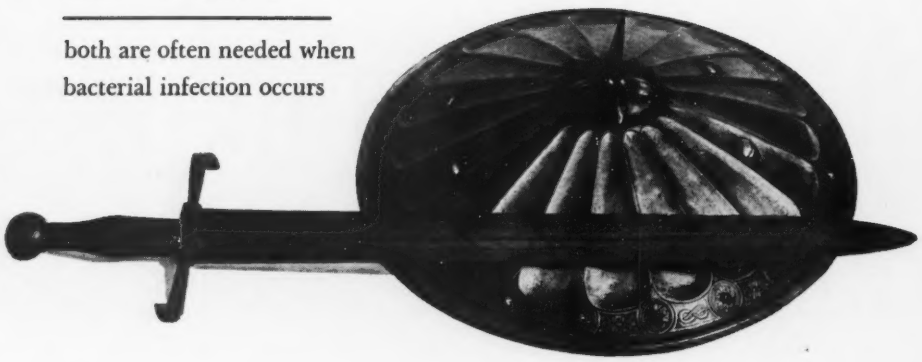

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KANSAS MEDICAL SOCIETY

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Volume LIX **NOVEMBER, 1958** **No. 11**

Care of the Newborn

An Outline of Standards in Kansas

I. Introduction

The following standards and recommendations for hospital care of newborn infants is based upon *Hospital Standards, Rules and Regulations,* Third Edition, 1953, published by the Kansas State Board of Health, and the booklet, *Hospital Care of Newborn Infants,* published by the American Academy of Pediatrics, with the approval of the American Academy of Obstetrics and Gynecology, 1954, revised, 1957, with the approval of the American Academy of Obstetrics and Gynecology; the American Committee on Maternal Health; the section on Maternal and Child Health of the American Public Health Association; the American Hospital Association; the National League for Nursing; the Children's Bureau of the Social Security Administration; the Department of Health, Education and Welfare, and the Section on Pediatrics of the American Medical Association.

It is our purpose here to delineate a set of standards for the care of newborn infants residing in hospitals in the state of Kansas. We are defining procedures which will safeguard the infant's physical well-being and promote normal relationship between him and his environment.

It is our hope that this material can be applied to all hospitals in Kansas for the improved care of newborn and premature infants.

II. Environmental Factors

Group care of newborn infants in hospitals is a comparatively new procedure, the history of which is studded with outbreaks of epidemic disease. Experience has shown that nurseries *can* be operated safely if they are carefully designed and provided with generous amounts of space. In planning new units, there should be close cooperation between the architect and the medical and nursing staff—and the state health department if there are any major problems. Old units should be continuously revised and remodeled until they meet accepted standards.

A. Design of Nursery and Physical Facilities of the Nursery

1. Main Nursery Units

A standard main nursery unit will consist of an anteroom and one or two (but not more than two) nurseries proper. It should be located conveniently in the maternity unit so that babies may be taken back and forth to their mothers without undue travel, and preferably away from major traffic areas to reduce potential contamination. It should always share the maternity unit's relative isolation from non-maternity patients and their hazards for infection.

a. Capacity. The total number of bassinets provided should be approximately 15 per cent greater than the total number of beds in the maternity unit (so that twins and premature infants may be cared for when the unit is operating at capacity).

Small nursery units should be provided as they limit exposure in case of a disease outbreak and impose a desirable pattern of nurse staffing. A nursery *may not* house more than 12 newborns in Kansas, and a total of eight is preferred.

b. Size. A generous provision of space is a necessity in the nursery. Room must be allowed to permit a two-foot spacing between bassinets on all sides, so that a nurse can conveniently care for one

Prepared by the Committee on Child Welfare of the Kansas Medical Society through a sub-committee composed of Dr. William H. Crouch, Jr., Topeka; Dr. H. P. Jubelt, Manhattan; Dr. Geoffrey M. Martin, Topeka, and Dr. Theodore E. Young, Topeka.

baby without touching anything that pertains to another, and to minimize air-borne cross infection. Hospital construction regulations require a *minimum* of 25 square feet per bassinet, but the provision of 30 square feet is considered more desirable and a worthwhile investment in safety (particularly when premature and full-term newborns will be cared for together in the same room).

c. Design. The design problem revolves around the close supervision of a number of babies by a limited nursing staff, and includes the necessity of "showing" the babies to the public at regular intervals. Square nurseries, ranged on either side of an anteroom and having glazed corridor walls, offer the best solution. Irregular shapes should be avoided. A maximum use of glass walls between nursery and anteroom is recommended, to extend the supervision of the nursing staff (a matter of particular importance in the case of premature infants).

d. Lighting. Nurseries should have sufficient window area to make them livable for the nursing staff, and sufficient artificial lighting to provide 20-30 foot candles of light in all parts of the room. Either incandescent or shaded fluorescent fixtures may be used. Particular attention should be given to the painting of the walls and ceilings so that (1) the illumination is free from glare, and (2) the light on the babies is essentially a white light which permits easy observation of cyanosis and other color changes.

e. Ventilation, Heating and Air Conditioning. Adequate ventilation will perceptibly reduce air-borne cross infection in the nursery. There should be a minimum of eight complete air changes in an hour, and the only practical method of accomplishing this at all seasons of the year is by the use of ducts and fans. Windows should close tightly (and if opened in the summer should be tightly screened to keep out flies and other insects).

Heating should be thermostatically controlled to maintain an even temperature of 75° F. in all parts of the nursery unit at all times of the year. This requirement will frequently necessitate special heating devices for the nursery. Such devices should be installed and operated as permanent equipment, under thermostatic controls, and should *not* consist of informal space heaters that require constant supervision. Every nursery room should be provided with a large thermometer, hung at the bassinet level, for checking room temperature. Minimum temperature gradients between floor and ceiling, which are important for the health and comfort of the nursing staff, will depend on proper air circulation and ventilation.

A relative humidity of 50 per cent is desirable at all times of the year. With certain types of heating plants, it may be necessary to evaporate water in the nursery to attain this level. A wet-bulb thermometer should be provided for checking humidity.

Air conditioning (cooling) in summer is not recommended unless (1) the entire maternity unit is cooled, (2) the temperature within the nursery rises above 90° F. Newborns have greater resistance to steadily unfavorable environmental conditions than they do to sudden changes in their environmental conditions. When the maternity unit is not air conditioned, and nursery temperatures necessitate some degree of cooling, it is desirable that the gradient between the nursery temperature and maternity unit temperature not be greater than 10-15° F.

2. The Anteroom

The anteroom to the nursery proper serves as a separation between infants and a public corridor, and therefore as a barrier to air-borne contamination. In addition, it houses a number of functions important to the nursery operation, but *not* including direct care to the infants. (All infant care should be provided in, on, or around the bassinet.)

The anteroom is the sole corridor between the nursery, or nurseries, and the rest of the hospital. Doors giving access to the nurseries and to the exterior corridor should be lightweight to reduce fatigue and glazed in some portion to reduce accidents. All doors should be fitted with spring closures and never propped open. Visitors' traffic may be diminished by the provision of pass windows so that a physician may examine a baby without entering the nursery proper.

Visitors enter the nursery through the anteroom. They should at once be confronted with a hand-washing basin with non-manual controls and storage space for an ample supply of masks and gowns. A hamper for used masks and gowns should be provided.

The anteroom will commonly be used for charts and charting. This function requires adequate storage space for charts, a flat surface that may be used for a desk top, and a chair.

Infants' formulas are usually stored in the anteroom. The refrigerator, of sufficient size to hold a 24-hour supply of formula for all infants, should be equipped with a thermometer.

Bottles and nipples must be cleaned in the anteroom before their return to the formula room. A sink of adequate size should be provided, and sufficient flat surface to make bottle washing convenient. (Hand-washing and bottle-washing should not be combined at the same sink, except in the smallest nurseries.)

Adequate storage space for general supplies and nursery equipment should be provided in built-in cabinets.

Necessary equipment will vary according to the size and the nursing procedures of the nursery. A small electric sterilizer should be provided.

3. Formula Room

Requirements for the formula room will vary according to the number of infants served. In even the smallest hospitals, it is desirable that it be a separate room used for no other purpose, unless formulas are prepared in the nursery anteroom.

The location is optional, in the kitchen or nursery area, depending upon whether it will be supervised by dietary or nursery personnel. Under no circumstances should it be located where there are sick patients.

Design and construction should take into account the two functions of the formula room: (1) cleaning bottles and nipples returned from the nursery, and (2) preparing formula which will go into the clean bottles and then be sterilized. The larger the hospital, the greater will be the advantage in separating these two functions and carefully planning the formula-room layout for the greatest efficiency of operation. In most hospitals, it is desirable that the apparatus for terminal heating of the formula be located in the formula room rather than in some distant area.

4. Suspect Unit

The suspect unit is a miniature nursery unit completely separate and distinct from the main nursery unit. It permits a low threshold of suspicion in the main nursery by providing (for any baby suspected of infectious disease) alternate quarters that do not jeopardize his status on the maternity floor or prohibit his return to the main nursery if suspicions prove unfounded, or increase the cost of his care. It should never be used for the care of a baby with a diagnosed infection, as such children should immediately be removed from the maternity unit.

A suspect unit is necessary for the safe operation of any nursery whose average daily census is more than four babies, and it is highly desirable for smaller ones. When, in a small hospital, a suspect nursery has not been provided, written plans should be developed (and be understood by medical and nursing staff) for segregating suspicious infants (1) in their mothers' rooms or (2) in a private room.

The suspect unit should be located as close as possible to the main nursery. It is highly desirable that it should share a common glass wall with a nursery or a nursery workroom, as this arrangement permits a maximum of observation by regular nursery personnel. The unit should consist of an anteroom and a nursery proper. The anteroom acts as a separation from the corridor and should contain a hand-washing basin with non-manual controls, equipment for washing and sterilizing bottles and nipples, and storage for gowns and masks. The nursery proper should contain the bassinets, in a proportion of approximately one bassinet for each 12 in the main nursery, a hand-washing basin with non-manual controls, and oxygen outlets. An allowance of approximately 40 square feet per bassinet should be made.

In other particulars, the requirements for environmental conditions and special equipment are the same for suspect units as for main nursery units.

5. Isolation Unit

Infants for whom a definite diagnosis of contagious disease has been made should be removed permanently from the maternity unit. They may receive care in pediatric wards, special pediatric nurseries, private rooms, or (under exceptional circumstances in very small hospitals), in their mothers' rooms. Such care should be physically and functionally divorced from care in the main nursery, to the greatest extent possible.

6. Premature Nursery Units

In large hospitals the establishment of special nursery units for premature infants may offer real advantages, by focusing the attention of medical and nursing staffs on infants with special needs and by favoring desirable nurse staffing patterns. Standards for premature nursery units are the same as those given previously for the main nursery units, with the exception that capacity should not exceed six infants, and a minimum of 30 square feet per infant should be provided in the nursery proper. Obviously, a premature nursery has special needs for electrical and oxygen outlets (one each per bassinet or incubator) and equipment.

7. Rooming-In Units

The care of mother-and-baby as a unit in the same room is considered to offer significant psychological advantages to both patients, and, by breaking up the concentration of susceptible newborns in central nurseries, major medical advantages as well. Rooming-in care has been used successfully in the largest and the smallest hospitals, both old and new. Generally speaking, it does not require special facilities over and above those usually found. Any room that provides 80 square feet may be used for simultaneous care of mother and infant. A rooming-in unit should not have more than four beds, and in such larger facilities a hand-washing basin with non-manual controls is a necessity. In new construction, units of two two-bed rooms which share a common nursery and anteroom have proved particularly successful. It should be noted, however, that only in the smallest

hospitals will use of rooming-in obviate the need for regular central nurseries and suspect units. There will always be premature babies, babies with special medical and nursing requirements, and babies whose mothers reject the whole rooming-in principle.

8. Accessory Rooms

In addition to the nursery, anterooms, and special units previously described, additional rooms may be needed, depending upon the size of the maternity service and the special requirements of the hospital program. Such accessory rooms might include: demonstration rooms for educating parents in infant care; examination and treatment rooms; chart rooms; offices for supervisory personnel. In small hospitals, many of these functions are grouped together in the nursery anteroom, and demonstrations may be given in the nursery proper in front of the observation window.

B. Equipment

1. Washbasins

Each nursery must have a hand-washing basin for hot and cold running water, equipped with non-manual controls and located close to the entrance of the nursery. (Elongated nurseries may require *two* such basins to minimize excessive walking by nurses.) Each washbasin should be provided with a paper towel dispenser, and it is desirable also to provide a dispenser for soap or (preferably) one of the bacteriostatic detergents.

2. Bassinets

A bassinet should be provided for each infant, preferably of the "unit" type which provides storage of the infant's individual equipment and supplies. (If non-unit bassinets are provided, each infant should have a bedside table for his supplies.)

3. Incubators

Each nursery must have at least one incubator for premature or full-term infants who require special environmental conditions. Nurseries serving both premature and full-term newborns should ordinarily have more than one incubator, and more than one type of incubator. Incubators should carry the seal of approval of the Underwriters Laboratory.

4. Receptacles

Each nursery should be provided with a covered receptacle for soiled diapers, equipped with foot controls, and with a hamper for soiled linen.

5. Bottle Warmers

Each nursery should be provided with a bottle warmer. Dry warmers are preferred to the water-bath type because the latter require more nursing time (for changing water, keeping water sterile, and keeping water level so low that it does not contaminate the nipples). Basins should not be used as warmers.

6. Scales

Each unit should be provided with an accurate scales, on a table that may be moved easily from bassinet to bassinet. It is desirable that the table have a dispenser or storage for disposable tissues, as the weighing platform must be freshly covered for each baby.

7. Oxygen Equipment

a. Oxygen outlets. An oxygen manifold system which permits oxygen to be piped into the nursery from outside storage conserves the time of nursery personnel and reduces traffic through the nursery. An allowance of one outlet for each four bassinets is desirable, and the outlets should be so located that infants receiving oxygen will also be receiving a maximum of supervision from the nursery staff.

b. Oxygen analyzer. An oxygen analyzer is an indispensable adjunct to oxygen therapy and should be provided in every nursery unit. The accuracy of the apparatus should be checked at frequent intervals with recalibration obtained when necessary.

8. Non-Recommended Equipment

a. Common bathing, carrying cart and dressing tables run counter to the whole theory of individual care and should not be permitted in the nursery in any form.

b. Curtains, drapes, and venetian blinds are hard-to-clean dust catchers. On corridor windows they interfere with supervision of the nursery and isolate nursery personnel from the rest of the hospital. Excessive sunlight may properly be controlled with exterior devices.

c. Cubicle or other partitions within the nursery interfere with nursing care and do not significantly reduce cross-contamination. They should not be installed in new nurseries; when they are present in old ones, they should be removed.

d. Ultra-violet lamps are not effective in controlling cross-infection unless used in great numbers. When so used, nursery personnel must wear protective devices, and the ozone generated will irritate the infants' respiratory epithelium. Such lamps should not be installed in new nurseries; when they are present in old ones they should be removed.

III. Administration of Services to the Newborn

The nursery is a sensitive area in any hospital. It carries its patients over the critical first days of life and therefore contributes a number of deaths to the hospital total. There is always a risk of epidemic dis-

ease, attended by unnecessary infant deaths, financial loss, and damage to the hospital's prestige. The risks, the morbidity, the deaths, can all be held to a minimum by provision of a high standard of care. A high standard of care will require careful planning and organization of the service.

A. The Hospital Administrator

The administrator should be aware of the importance of the nursery and the necessity of maintaining adequate standards there. He should have a good understanding of the nursery operation, through attendance at staff meetings and conferences with the nursery personnel. He can, through his position, stimulate and encourage staff organization, the formulation of policies and routines, and the development of self-imposed rules and regulations. He is responsible for personnel policies that contribute to a safe operation: health examinations for all nursery personnel and, in case of illness, standard procedures that do not penalize the worker who reports sick. As the chief financial officer of the hospital, he must provide adequate funds for maintenance, for purchase of necessary equipment, and for education and training of nursery personnel.

B. The Medical Staff

The medical staff is responsible for the level of medical care on the newborn service. Everyone's responsibility is frequently nobody's responsibility, however, and it is essential that the medical staff appoint (1) a committee of physicians to concern itself with the affairs of the nursery, and (2) a single physician to act as the "physician-in-charge," a person with special interest, and of possible special competence, in the care of full-term and premature infants.

The Nursery Committee and the designated physician should:

1. Arrange for a formal visit to the nursery at least three times weekly to review the status of the babies, to confer with nursery personnel, and to determine the adequacy of nursing procedures and routines.

2. Establish a system of calls that will assure the immediate availability of a physician in case of emergencies.

3. Take responsibility for the enforcement of these orders and policies which are concerned with the welfare of all babies in the nursery, especially those which have to do with the management of individual and group infections.

4. Oversee the keeping of proper records, especially records of admission, interim, and discharge examinations.

5. Report to the staff at reguar intervals on the operation of the nursery, problems of infant morbidity and mortality, recommendations for initiation or change of policies, and similar matters.

To carry out these and other duties, the committee and the designated physician must be given sufficient authority by the hospital administration and by their colleagues on the medical staff. This should include authority to act quickly, and, if necessary, drastically, in case of an outbreak of epidemic disease.

C. The Nursing Staff

The nursing staff is responsible for hour-by-hour care of newborns. Maintaining an adequate level of nursing care always requires careful and continuous planning, which should include:

1. Simplification of all nursing procedures so that they can be carried out with a minimum of time and energy.

2. Making maximum use of special skills, education, and experience, and conversely limiting the responsibilities of untrained persons.

3. *Always* placing the supervision of the nursery under a registered professional nurse with special training and experience in the care of full-term and premature infants, for each eight-hour period of the 24-hour day. (The importance of special experience and training is such that if a hospital is unable to find such nurses, it should make arrangements for advanced training for members of its permanent nursing staff.)

4. Provision of an adequate number of nursery workers on all shifts, never fewer than the accepted minimum of one nurse or auxiliary worker to each 12 infants.

5. Recognition that the ideal nursery staff would consist entirely of registered professional nurses. Those of less-than-professional competence should always work under the direct, immediate, and frequent supervision of a professional nurse (and such workers, including student nurses, should not be assigned to the nursery without prior orientation).

6. Adherence to the principle that all newborns should be under close observation at all times. When this requirement gives rise to great difficulties, as sometimes occurs in small hospitals, it should lead to serious consideration of rooming-in techniques.

IV. Care of Infant Prior to Labor and Delivery

The quality of newborn babies is variable. Some arrive healthy, vigorous, and capable of withstanding the stresses of a difficult delivery. Others appear to be made of less satisfactory material, and are killed or permanently damaged by slight degrees of trauma or insignificant infections. The factors that determine the matter of quality are often within the physician's

control. The baby whose mother has received adequate, careful medical supervision through her pregnancy has a statistically better chance of being a "good" baby than one whose mother has not.

A. Prenatal Care

Minimum Standards of Obstetrical Care, available from the Kansas Medical Society or the Kansas State Board of Health, summarizes what is expected from the physician in the area of prenatal care. A number of items mentioned have particular significance for this person, the unborn baby.

1. Dietary Instruction

"In recent years, many studies have indicated that the prenatal diet affects fetal growth and development as well as the course of pregnancy, labor, delivery and the post-partum period. There is conclusive evidence that the incidence of prematurity, stillbirths, toxemia and congenital defects is markedly higher among infants born to mothers whose diets are inadequate than among those of well-nourished women."

2. Rh Typing

"The chief value of the Rh determination lies in its warning of possible complications in some cases, albeit a small number. The physician who is confronted with an erythroblastotic baby without being warned by available laboratory procedures, has not performed his full duty to the patient." Incompatibilities to the major blood groups (AOB) which may produce neonatal jaundice should be kept in mind.

3. Serological Testing

"The significance of the serological test is obvious." (A recent upward trend in incidence of congenital syphilis is thought to be due to infection or reinfection of the mother after a negative serological test in early pregnancy. In selected cases, repeating the serological test in the middle of the third trimester is recommended.)

4. Preparation for Breast Feeding

"Part of the patient's orientation to pregnancy and motherhood should be an enumeration of the advantages of breast feeding." It is generally agreed that the success or failure of breast-feeding among the many "undecided" mothers depends primarily on this prenatal orientation.

B. Prenatal Instruction

The quality of a baby is influenced favorably when his mother understands the meaning of good health during pregnancy, and accepts the fact that good health will promote her child's welfare. Understanding and acceptance are directly related to the amount of time the physician will spend in informing, explaining, and counseling. A great amount of time is required so that in recent years the establishment of "classes" for expectant mothers has become an accepted procedure. In class or in the physician's office, instruction and discussion should be arranged around the following:

1. The physiology of reproduction.
2. An explanation of the process of labor and delivery.
3. Reasons underlying the prevailing system of prenatal care.
4. Special dietary requirements of pregnancy.
5. The "hygiene of pregnancy"—including emotional hygiene.
6. Care of young infants.
7. Breast feeding.
8. Medical supervision of the well baby. (A discussion of formula preparation is *not* recommended during the prenatal period, as such would tacitly assume either that the patient was so unmotherly as not to want to nurse her baby or so biologically inadequate that she could not.)

V. Care of the Infant in the Delivery Suite

No delivery is so normal that its outcome is a certainty. The physician in attendance in the delivery suite has the total responsibility, both to the mother and infant.

A. Anesthetics and Sedatives

A plea is made here for the limited use of these drugs, as, used in excess, they are injurious to the newborn and may cause delay in breathing and sometimes death. Especially in the case of the premature, labor should be conducted with little or (preferably) no analgesia.

B. Conduct of Delivery

Only the highest degree of obstetrical management and skill should be acceptable. The physician in attendance must assume responsibility for unusual trauma to the infant.

C. Resuscitation

Almost all problems of resuscitation can be prevented with minimal use of sedatives and anesthetics. A physician need not be an expert at resuscitation if he does not care for drugged infants! The following principles are important:

1. Clear airway must be maintained by use of a suction bulb or a mechanical suction device. This aspiration of the pharynx must be gentle. In the severely drugged infant, the semi-rigid catheter may be needed for aspiration of the trachea—this should be employed only by those skilled in its use!

2. Oxygen, 100 per cent, should be available, and an infant mask with reservoir bag and spring-loaded escape valve also. CO_2 mixtures should not be used in resuscitation.

3. Mechanical resuscitators are not recommended.

4. Stimulants are usually of little value as the anoxic respiratory center is refractory to them. The convulsant type drugs (Coramine and Metrazol) do not have any place in resuscitation. The following may be of some value:

a. Caffeine and sodium benzoate (intravenously or intramuscularly) 3-4 mg. per pound.

b. Epinephrine (subcutaneously, intramuscularly, or intravenously) 0.06 to 0.3 cc. (1-5 minims).

5. Nalline-N-allyl Normorphine (subcutaneously, intramuscularly, or intravenously). One should seldom find use for this drug! It is a specific for those in whom morphine or Demerol have been used in excess; it is of no value as an antagonist for other sedative type drugs. Doses are as follows: 0.2 mg., preferably into umbilical vein. It may be repeated at frequent intervals.

6. The infant laryngoscope and bronchoscope have a place only in the hands of skilled personnel.

D. Appraisal of Physical Status

A rapid appraisal which concerns itself with color, breathing difficulties, and gross defects should be carried out at the time of birth. This appraisal does not substitute for the complete physical examination which should be done within the first 24 hours when the infant's condition has stabilized.

E. Routine Care in the Delivery Room

1. Temperature—a heated bed or incubator (turned on) should be available to maintain the infant's temperature.

2. The bed or incubator should be constructed to allow for tilting for proper drainage from the nasopharynx.

3. Umbilical cord—this should be clamped or tied (under sterile technique). Bands and binders are not desirable.

4. Eyes—the eyes of the newborn should be protected with a 1 per cent solution of silver nitrate in wax ampules, taken from a dated box. Care should be taken that the silver nitrate is later washed out with isotonic saline solution. This cannot be adequately done with a dropperful of saline.

5. Identification—before infant or mother leave the delivery room, adequate identification should be attached.

F. Unusual Deliveries

Infants who are the products of unusual deliveries —i.e., prematures, may require care and attention not given above, i.e., incubators, etc. One is referred to other sections of this manual or to the standard texts for data on the management of such babies. A second physician may be helpful to care for these infants at the time of delivery.

G. Transfer to Nursery

1. This should be accomplished by a route as free of contacts as possible.

2. A movable heated bed and oxygen supply should be available if needed.

3. Records must be sent with the infant.

4. Transfer (to nursery or mother's room) should be carried out only when the condition of the baby and/or the mother permits.

VI. Infant Care in the Nursery

After the baby has been received in the nursery from the delivery room, there should be a minimum of handling and constant awareness of individual technique. This has been emphasized previously in this manual. He should be treated as if he is potentially a dangerous source of infection. Many epidemics have their origin in "clean nurseries."

The baby's bassinet and equipment constitute individual isolation units, so isolation technique should be carried out. The hands should be washed before and after handling each infant. All infant care should be given at the baby's bassinet. There should be no common equipment such as dressing tables, with the exception of a common scale which should be covered. No common carriers are allowed.

Exclusion of nursery personnel with infections (colds, skin diseases, diarrhea, etc.) should be mandatory.

Daily inspection of each infant for signs of illness (skin rash or infection, cyanosis, jaundice, thrush, sore buttocks, etc.) is necessary.

Hand Washing. Hands should be washed before and after the care of each baby. This includes hands, wrists, and exposed arms, washing to the elbow, especially when using porthole type incubators. One should wash all areas of the hand, including the area between the fingers. Hands should then be rinsed completely and dried with paper towels which are discarded. Detergents containing hexachlorophene should be used.

Gowns should be worn by all persons in the nursery. Short-sleeved gowns are worn by nursery personnel, permitting washing to the elbows. Physicians entering to examine a single baby should wear long-sleeved gowns. An effort should be made to avoid contamination of the gowns. Caps are optional. A clean gown must be worn by any person entering the suspect nursery and discarded before leaving that unit.

Masks may give a false sense of security and therefore are not recommended for individuals such as nurses and nurses aides working in the nursery. Individuals whose duties require only an occasional visit, such as physicians, laboratory technicians, and floor personnel, should wear masks in the nursery.

A. Care of the Normal Infant

The most precarious hours of infancy are those immediately after birth. The newborn infant must be under constant observation. The bassinet of the new admission to the nursery should be placed in a position which can be conveniently watched. Signs of illness should be quickly observed and reported to the physician.

The following portion of these standards shall deal with the individual bedside care of the newborn infant.

1. Care of the Skin

Care of the skin of the newborn infant is primarily given to prevent infection. The more one traumatizes the skin in washing, rubbing, and scrubbing, the more likelihood of infection. The present consensus is that the less done to the skin, the less danger of infection.

a. Cleansing. Vernix caseosa is a natural protective coating and should be left on the newborn skin. Excess vernix and blood may be removed with warm water and cotton for esthetic reasons. No surgical gauze should be used. Soap and water baths are not recommended during the baby's hospital stay.

b. Care of the buttocks. The buttocks area may be satisfactorily cleaned with water. Oil may be used in the diaper area only. If used, oil should be kept in a sterile glass container at the bedside of each infant.

c. Care of the cord. The cord and umbilical area should be carefully kept clean. No dressings should be used.

2. Temperatures

Separate thermometers should be kept at each baby's bedside. Temperature should be taken on admission and at least every four hours until it is stabilized. Subsequently it may be taken once daily. It is felt that axillary temperatures are sufficiently dependable for use in the newborn. Axillary temperatures should not vary more than 2 degrees a day, but this stabilization may be at any level between 94 to 99 degrees.

3. Clothing

Each newborn should wear one piece of cotton clothing besides the diaper, and this should consist of a gown which opens easily with ties or opens in the back.

4. Weighing

Infants should be weighed on a scale mounted on a portable table. The weighing should be accomplished at the infant's bedside in a manner which will preserve body heat and avoid chilling. Each scale pan should be freshly and completely covered for each infant. Weight should be taken at birth, or as soon after birth as possible, at four days, and upon discharge from the nursery, unless otherwise ordered. In the event of death of the infant, the infant should be weighed before being taken from the nursery.

5. Transportation

Babies should be carried to the mother individually by the nursing staff. Care should be taken by the nurse not to contaminate herself on the mother's bed clothing or articles in the mother's room.

6. Feeding

There are two acceptable methods for feeding of the baby, by breast and artificially. Breast feeding is more desirable. The process of feeding the baby on the breast solidifies good mother-child relationships. Formulas, at best, are less than satisfactory substitutes for breast feeding.

a. Breast feeding is a healthful and enjoyable experience for both mother and baby.

1. General considerations. Prenatal and hospital instruction in breast feeding techniques is essential. Demand feeding is recommended for the feeding of breast babies in the hospital. Breast feeding should be started as soon as possible following delivery. Only water or sugar water is used as a complementary feeding to the breast fed baby. It cannot be determined whether the mother's milk supply will be adequate during her hospital stay. It is suggested that one wait several weeks with a baby on breast before absolutely determining the adequacy of any nursing breast. The attitude of the mother always guides her physician in choosing breast feeding or artificial feeding, but her feelings can be diplomatically altered by a few choice words from her physician.

2. Techniques. Inexperienced mothers will need to be instructed in the techniques of breast feeding by an experienced and sympathetic physician and nurse. It is most important that the mother and the baby be comfortable during breast feeding. An empty breast is the best stimulus to the production of more breast milk. Therefore, manual expression of the breast should be taught before the mother leaves the hospital.

3. Care of the breast. Soft, absorbable breast coverings should be used between breast feedings to absorb excess milk. These coverings should be sterile. Caked milk may be removed with

sterile cotton and water. Antiseptic solutions should not be used on the breast. No routine medications or ointments are necessary in the care of the normal nipple. Boric acid is dangerous and should not be kept in the nursery for any purpose, and particularly not for washing breasts. Hand washing of the mother before receiving a baby for feeding is essential. The breast should be washed with warm water once daily.

4. Collection of breast milk. Breast milk may be expressed by the mother if for any reason the child cannot nurse and the mother wishes to maintain her milk supply. The manual method of expression of the breast milk is to be preferred; however, hand pumps and electrical breast pumps are available.

Collected breast milk should be sterilized.

b. Artificial feeding. It is important that all bottle-fed babies should be taken to the mother's bedside and fed by them. Here again it is unnecessary to adhere to a strict schedule. Propping of bottles should never be permitted.

1. Milk mixtures. The physicians should write orders for milk mixtures and any changes in them. One or two stock formulas should be agreed upon by the medical staff, and special milk mixtures should be ordered only for a good cause.

2. Formula preparation. The layout of the formula room has been previously discussed. All milk mixtures and sterile water should be prepared in the formula room.

a. One individual nurse or dietitian should be assigned as supervisor of the formula room. She should preferably have training in formula preparation and sterilization procedures.

b. Used bottles, caps, and nipples should be cleaned in the nursery before being returned to the formula room. (Bottles, caps, and nipples from suspect nurseries, or from the pediatric nursery, should be washed thoroughly and boiled before being taken to the formula room.)

c. In the clean-up section of the formula room, again the bottles, caps, and nipples must be thoroughly washed with a detergent. A brush must be used to clean the inside of the bottles. Nipples should be inverted. Nipples must be boiled five minutes.

d. In another section of the formula room, the milk mixtures are prepared, using clean but not aseptic technique. The two sections, that is the clean-up and the preparation sections, should be separate and apart from each other. The bottles, nipples, and caps are filled with milk, then placed on metal racks where terminal sterilization is done. The bottle caps should not form a tight seal around the shoulder of the bottle or nipple.

e. Sterilization of the formula is accomplished by terminally heating, either at pressure at 230 degrees F. for ten minutes or by the non-pressure method of steam or water, at 212 degrees F. for 25 minutes.

f. The formulas are cooled at room temperature for one hour and then placed in a refrigerator maintained at 40 to 45 degrees F.

3. Delivery of milk mixtures. The 24-hour supply of milk mixtures should be brought to the nursery from the formula room.

4. Storage of milk mixtures. Milk mixtures should be stored in a refrigerator used only for this purpose with a thermometer regulating a controlled temperature of 40 to 45 degrees.

5. Warming of milk mixtures. Care should be taken not to contaminate the nipples by filling the water up too high. No bottles should be warmed in the laboratory basin.

6. The formula is inspected at periodic intervals by bacteriological survey. It is preferable to have bacteria counts on random samples of milk, not to exceed 25 organisms per cc.

7. Drinking water. It is recommended that plain sterilized tap water, kept at room temperature, be offered once or twice daily, if necessary, to irritable babies. The handling of sterile water is similar to that of milk, as described above.

8. Feeding records are kept of the infant's diet as to the amount taken and the method of feeding.

7. Supplies

The nurse in charge of the nursery should daily check equipment and supplies to insure proper working of the mechanical equipment and see that adequate amounts of supplies are present for the 24-hour period.

The following items are necessary at the infant's bedside or nearby:

1. Bulb syringe or suction device.

2. A supply of oxygen and apparatus for immediate administration.

3. An incubator.

4. Sufficient clean linen delivered to the nursery for at least one eight-hour shift. No unlaundered garments should be used. Garments marked with aniline dyes should be laundered before being used in the nursery.

8. Cleaning the Nursery Unit

No dry dusting or cleaning should be allowed in the nursery unit. Furniture, equipment, walls and

floors should be washed or wet mopped by housecleaning personnel, not nurses. This personnel should wear gowns and masks while cleaning. The daily cleaning should be timed so as to coincide with nursing periods when most of the infants are out of the nursery.

9. Care of Soiled Linens

Soiled diapers should be placed in a special diaper can. This should be separate from the hamper used for soiled clothing and bed linen. Diapers should never be rinsed by nursery personnel or in the nursery proper.

The soiled linen should be collected twice daily, at least. The linen hamper and diaper can should be placed outside the nursery for collection. Diapers and soiled linens should be taken to the laundry before being removed from their respective bags.

Diapers and soiled linens should be washed separately from other hospital linens. Garments should be kept soft and free from irritating substances such as strong soap or chemicals. Rules for laundering, such as sterilization, preferably by autoclave, and delivery to the nursery are matters of hospital policy; however, one is referred to the *Manual of Operations,* published by the American Hospital Association, 18 East Division Street, Chicago 10, Illinois.

B. Care of the Premature Infant

A premature infant is any infant born alive with a birth weight of 5½ pounds (2,500 grams) or less. These infants have certain characteristics which put them aside from the normal infant. These special characteristics will be stressed, and specific recommendations are made to circumvent these inherent deficiencies.

1. Examinations

The private physician who is responsible for care of the premature infant should see the infant immediately upon admission. A detailed examination should be performed and recorded, preferably in the incubator, by the end of the first 24 hours.

The nursery supervisor should focus close, immediate attention upon all new premature infants.

Early treatments, weighing, and handling should be kept at a minimum in an effort to avoid undue fatigue and exposure.

2. Clothing

It is recommended that only a diaper be worn by premature infants to facilitate close observation.

3. Incubators

There are two general types of incubators: (1) the circulating type, in which there is forced air circulation inside the incubator, and (2) the convection type in which the air is circulated by convection currents, the heating unit being open at one end of the incubator.

Each small infant and many larger infants will require incubator care.

Incubator temperatures should be kept from a high of 94 degrees for a small infant to 85 degrees for larger infants. The incubator temperature should be kept steady or constant.

The relative humidity should be kept at 65 per cent at least, preferably 100 per cent for infants under 1,800 grams and for infants in more than 40 per cent oxygen.

As the infant grows and his temperature becomes stabilized, the temperature and humidity of the incubator may be gradually changed towards 85 degrees and room temperature. As these conditions are met, the infant may be dressed and removed to an unheated crib.

In view of the prevalence of staphylococcal infections in hospitals, it is recommended that the air intake and outflow of circulating incubators be connected directly to outside air. This practice serves to isolate this infant from the nursery.

4. Turning

Most small infants, whether they be in an incubator or not, should be placed on the abdomen and turned from side to side at frequent intervals. This enhances removal of the amniotic fluid and mucus from the upper respiratory passages. The nose and throat may be suctioned gently with a soft rubber bulb as often as fluid seems to collect.

5. Weighing

Premature infants should be weighed as soon after birth as their condition permits. However, this may be postponed if the infant's condition is precarious. In event of the death of the infant, he should be weighed before leaving the nursery. Infants need be weighed only every four to five days.

6. Transportation of Prematures

Many premature infants 4½ pounds and over may be transmitted to their mothers for breast feeding if particular care is exercised in the process. Premature infants may be transferred to x-ray, in incubators with movable oxygen, for diagnostic studies.

7. Feeding

Breast feeding may be utilized in older premature infants, as indicated above. However, in many instances it may be advisable to express the breast milk manually and, after sterilization, feed it to the baby with a nipple, until the time arrives when the child is vigorous enough to nurse at the breast.

a. When to begin feeding. Opinion varies as to

the proper time for the first feeding. However, there is a tendency to postpone the beginning of feeding of premature infants. This is due to the high death rate in the first 24 hours and to the fact that few premature infants have been demonstrated to die of starvation or dehydration, despite the fact that 70 per cent of them die within the first 48 hours. The feeding of smaller moribund infants may be delayed as long as four days. If the infant's condition is serious, each feeding induces extra hazards of vomiting and aspiration. Therefore postponed institution of the first feeding to at least 24 hours in prematures is advisable. The first feeding should consist of sterile water or glucose solutions.

b. Method of feeding.

1. Gavage feedings should be given only by a nurse who is trained and experienced in its use. Many prefer the utilization of a polyethylene catheter of 0.05 mg. internal diameter, inserted through the nose and into the upper stomach by the physician and left there for three to seven days for feeding by glass syringe.

2. However, a small soft nipple may be used, and it is the safest of all methods of feeding.

3. Breck feeders, which force the feeding into the baby's mouth, are dangerous and should not be used.

4. On occasion, cup feeding may be advantageous.

c. Feeding techniques. The infant should be supported or held in a semi-reclining position during each feeding period, and the bottle must always be held, never propped. Infants receiving oxygen must be fed in the incubator. No bottle feeding should be prolonged longer than 20 minutes.

d. Milk mixtures. In general, the type of food does not determine whether the premature infant will survive, but it does determine to some extent the rate and composition of his growth. Long pediatric experience and laboratory studies show that easy digestion, satisfactory growth, and reduction of the excretory load occur with the relatively low electrolyte and nitrogen content of human milk. Cow's milk mixtures have high retention of nitrogen, calcium, phosphorus, and presumably other electrolytes and may increase growth per calories fed but induce a larger renal load.

e. Vitamin mixtures. It is recommended that 800 units of Vitamin D, 4,000 units of Vitamin A, and 40 mg. of Vitamin C be supplemented to all premature infants at about one week of age. These vitamin mixtures may be sterilized by the terminal method after being added to the milk. The use of iron is of little demonstrated value before six weeks of age.

f. Caloric requirements. The amount of food required will vary, depending upon the age, weight, and condition of the infant. In general more mistakes are made by feeding too much too often rather than by too little too late. Excessively large feedings may lead to aspiration. It is recommended that feedings be 40 calories per pound (or 80 calories per kilogram) per day by the end of the first week, and 60 calories per pound (125 per kilo) by the end of the second week. Fluid requirements after the first week will be satisfied with approximately 120 to 140 cc. per kilogram for each 24 hours, after the first few days of life.

g. Frequency of feedings. To avoid over-distention, the interval between feedings should usually be shortened in smaller infants. Infants under the weight of two pounds, or 1,000 grams, may be fed every two hours; those under three pounds, or 1,350 grams, may be fed every three hours; those of about four pounds (or above 1,800 grams) may be fed every four hours.

8. Treatment of Premature Infants

It is not the purpose of this document to discuss the treatment of illness. However, there are some special considerations for the premature infant that fall under this treatment heading.

a. Oxygen is a drug and should not be used routinely for prematures. Some premature infants require an atmosphere of oxygen concentration at 40 per cent, as determined by direct oxygen analysis. Concentrations even in the 25 to 30 per cent range should be used no longer than absolutely necessary.

Direct analysis should be done every four hours, or more frequently. Orders for oxygen should be given in percentage and not in liters, per minute. When the infant is to be removed from oxygen, there is probably no advantage in removing him gradually. Oxygen concentrations above 40 per cent should be used only in emergency and should be accompanied by 100 per cent humidity if possible.

b. Vitamin K should be given to all premature infants, although its value is open to question. Dosage is limited to 1 mg. Large doses produce kernicterus.

c. Respiratory stimulants. There is little justification for the use of respiratory stimulants such as alpha-lobaline, Coramine, or Metrazol. In rare instances weak premature infants may benefit from a general stimulant such as caffeine and sodium benzoate, in single dose, or repeated doses of 3 mgs., or 1/20th gr. per pound of body weight in-

tramuscularly. Physical stimulus is superior to medicinal stimulus.

d. Transfusions. It is physiological for the premature infant to have a low blood count after several weeks of life. However, if the hemoglobin falls below 7 or 8 gms., one should consider transfusion. Transfusion may give a general non-specific boost to the infant's well-being in addition to the effect of a rise in blood count.

9. Going Home Instructions

No premature infant should be discharged until he has demonstrated an ability to thrive under conditions existing at home. On the average, discharge weight is 5½ pounds (or 2½ kilograms). The condition of the individual infant, the maternal ability, the breast milk supply, etc., may permit an earlier or dictate a later discharge.

The local public health nursing agency or a visiting nurse may be of great value in determining the time of discharge and preparing the mother for reception of her growing premature infant. She should be available to demonstrate to the mother the actual care of the infant in the home, as directed by the infant's physician. She may make repeated visits, depending upon the circumstances in each case. The parents should receive instructions in the hospital regarding the care of the infant, by demonstration and by participation, according to the policies of each particular hospital medical staff.

It is essential that the premature infant receive regular medical supervision throughout the first year of life. Visits to the physician should be made at monthly intervals during this first year and the plan should include an ophthalmological examination for the smaller infant.

C. The Infant with Infection

The regular nursery is designed and equipped for the care of normal non-infected babies. Procedures for the removal of potentially infected babies or the admission of potentially infected babies should be formulated, as recommended in the following discussion.

1. Suspect Nursery

A separate unit or nursery, previously described in this publication, should be provided for those infants suspected of having or developing an infectious condition. Babies who are put into the suspect nursery fall into the following categories:

a. Infants suspected of having an infectious condition such as those who have developed loose stools, fever, mouth or skin lesions.

b. Infants born outside the hospital. These infants may be kept in the suspect nursery; if no illness is noted within 48 hours, the baby may be transferred to the regular nursery.

c. Infants of mothers who are ill with diarrhea, who are delivered while having diarrhea or respiratory infections, or who develop infectious diseases while in the hospital.

d. Infants having been subjected to ritual circumcision.

The babies mentioned above may be roomed-in with their mothers or transferred to the pediatric ward as an equal alternative to the operation of a suspect nursery in a small hospital, depending upon hospital policies.

The nurse on duty should be authorized to transfer babies to suspect nursery pending a decision concerning the infectiousness of the infant by the staff physician in charge of the infant's care.

Nursery personnel may be designated to care for these infants in the separate nursery but must rigidly adhere to isolation technique. Gowns and masks and hand washing should be performed upon entering and upon leaving the suspect unit.

2. Isolation

Procedures for isolation should be provided for newborn infants in whom a definite diagnosis of infection has been made. After a diagnosis of infection has been made, these infants must be transferred to another section of the hospital, either to the pediatric ward or to a private room. (Infants who have been isolated should never be returned to the regular nursery.)

An epidemic may be defined as three or more cases of the same disease occurring in a nursery within a two-week period. Epidemic diseases which occur most frequently in the newborn unit are diarrheal diseases, skin infections, mouth infections, and respiratory infections. By far the most serious of these are diarrhea and infections caused by the 80-81 strain of staphylococcus by phage typing. Reporting of this disease to the Kansas State Board of Health is mandatory.

Prevention of epidemics depends upon careful attention to techniques of infant care. The occurrence of an epidemic is almost certain evidence of a break in technique. Such an epidemic calls for immediate and drastic action by all persons concerned.

If two or more cases of any infectious disease, even a mild one, occur simultaneously in the nursery, this is a warning signal of a serious break in technique and should be promptly reported to the Nursery Committee of the hospital staff and the Committee of Hospital Infections. The following basic principles should be immediately put into effect:

a. Immediate transfer of infected infants for treatment to an appropriate isolation unit outside the maternity service.

b. Closing of the infected nursery to new admissions until all current patients have been discharged.

c. Establishment of a clean nursery with separate personnel for new admissions.

d. Thorough investigation of the source of the infection. This includes personnel, patients, formula room, nursery technique, laundry, sterilizing equipment, plumbing, etc.

e. Elimination of the source of infection and establishment of appropriate measures to prevent occurrences.

f. A thorough cleaning of the infected nursery before opening it to new patients.

g. Examination of babies recently discharged from the nursery.

VII. Education of Parents

Adequate education of both parents is important for full physical and emotional growth of babies. A comfortable, happy, healthy infant is the product of healthy, emotionally stable parents.

A. Prenatal Education

Obviously this education must begin early in the pregnancy with interviews with the attending physician who will recommend reading material and prenatal classes if such are available. (See previous section on Prenatal Care.)

B. Education in the Hospital

Lying-in mothers are a captive audience who are eager for any information about babies. The physician or the medical staff and the hospital staff have joint responsibility for this phase of parent education. Much of this education will automatically be accomplished if rooming-in is carried out. Much of the following information will depend on the ideas of the individual physician but should be included in the education while in the hospital:

1. Feeding

Whether feeding is to be accomplished by breast or by artificial means, it is recommended that a demand routine be followed. One should caution against too frequent feedings, however, and rarely should the interval be less than two hours.

a. Breast. The mother should be informed as to the value of such feeding, should be shown the technique of feeding the infant at breast, and the art of manual expression of milk. She should be schooled in the essentials of the diet and fluid needs for the breast feeding mother.

b. Artificial. Mothers should be shown the proper method of terminal sterilization of formula. Techniques of feeding and holding the infant should be demonstrated.

2. Skin Care

Mothers should be adequately informed on this matter, and this should include demonstrations of the bath and care of the skin.

3. Clothing

The type of clothing, loose fitting and of light weight cotton with ties, should be discussed and might be demonstrated. The diaper, its care and actual pinning on the infant, should be shown. Many mothers are anxious to know about recommended laundry methods for care of clothing.

4. Bowel Habits

The infant's elimination is a constant source of worry to the new mother. Much needless anxiety can quickly and easily be removed with a few well chosen comments.

5. Discharge Examination

It is recommended that this be carried out in the mother's room as this may provoke many questions and relieve much parental anxiety. It would also be wise, if possible, to place the infant in the mother's room for a period of six to eight hours before discharge.

6. The Handicapped Infant

A handicapped baby will require much more help from parents, physician, and hospital staff. Such parents must be supported adequately and should be referred and reported to public agencies that deal with the handicapped.

C. Education after Discharge

Follow-up care in the state of Kansas in most instances will be that of the attending physician. In selected cases (first babies and those requiring special care), further education and help may be available, in certain areas, by referral to the Public Health Nursing Service. In such instances the public health nurse will act under the attending physician and expect to receive instructions from him.

VIII. Records and Statistics

Some orderly system of information concerning each infant is necessary, and this is the responsibility of the attending physician and nursing staff. Just as important as the record itself are the analysis and comparison of data from such.

A. Necessary Records

1. Physicians' Records

Physicians' records should consist of the following:

a. Mother's history. A brief résumé of the family history, the mother's pregnancy, serological test for syphilis, Rh status, analgesia, anesthesia, length of labor, and type of delivery should accompany the newborn infant's record. A report of the mother's chest x-ray is desirable.

b. The infant's record should include:

1. Physical examination and medical evaluation soon after birth.

2. Progress notes as indicated to record and evaluate the course.

3. Complete physical examination prior to discharge.

4. Final diagnosis according to the *Standard Nomenclature of Diseases and Operations.*

2. Nurses' Records

The nurses' record should show the following:

a. Immediate reactions after birth and delivery room care.

b. Temperature.

c. Weight.

d. Time of first urination.

e. Number, character, and consistency of stools.

f. Feeding, breast or artificial, amount taken, and reactions to feeding.

g. Unusual signs or symptoms.

B. Record Forms

Many types of records are available; one is referred to the American Academy of Pediatrics publication, *Hospital Care of Newborn Infants,* for samples of such records.

C. Statistical Analysis

The responsibility of the medical and hospital staffs does not cease with the keeping of adequate records. Data concerning infant morbidity and mortality must be compiled, and this must be presented to the staff regularly for criticism and evaluation of the work done.

1. Mortality Data

Mortality data should be collected in the two groups as listed below:

a. Perinatal mortality. Defined as including all deaths from stillborns beyond 20 weeks gestation and liveborn who expire within the first seven days of life.

b. Mortality according to birth weight groups as follows:*

Metric	*English*
500 gm. or less	1 lb. 1 oz. or less
501 gm. to 1000 gm.	1 lb. 2 oz. to 2 lb. 3 oz.
1001 gm. to 1500 gm.	2 lb. 4 oz. to 3 lb. 4 oz.
1501 gm. to 2000 gm.	3 lb. 5 oz. to 4 lb. 6 oz.
2001 gm. to 2500 gm.	4 lb. 7 oz. to 5 lb. 8 oz.
2501 gm. to 3000 gm.	5 lb. 9 oz. to 6 lb. 9 oz.
3001 gm. to 3500 gm.	6 lb. 10 oz. to 7 lb. 11 oz.
3501 gm. to 4000 gm.	7 lb. 12 oz. to 8 lb. 13 oz.
4001 gm. to 4500 gm.	8 lb. 14 oz. to 9 lb. 14 oz.
4501 gm. to 5000 gm.	9 lb. 15 oz. to 11 lb. 0 oz.

2. Compilation of Data

When the data is available it should be presented to the medical and hospital staffs with the following points in mind:

a. Comparison of statistics with those available —i.e., those from the hospital from previous such studies; those from other hospitals; those which are available from state and national studies.

b. Presentation and frank criticism of problem cases with recognition of inadequacies in medical management, nursing care, and hospital facilities.

c. Immediate correction of any deficiencies which become obvious through the above analysis and presentation.

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* Recommendations for Developing Comparable Statistics on Prematurely Born Infants and Neonatal Mortality (Joint Statement of Public Health Conference on Records and Statistics, Association of Maternal and Child Health and Crippled Children Directors, Children's Bureau, National Office of Vital Statistics—Dec. 1950).

The miracles of modern science are not created by one brain and one pair of hands. We need broad financial support, teamwork and the spirit of friendly competition. We need the spirit of World War II. . . . The present emergency is even greater. The response must be greater if freedom is to survive.

—*Edward Teller*

Care of the Newborn

Definitions, Laws, and Regulations in Kansas

I. Definitions

A. Live Birth

Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live born." (International Classification of Diseases, 1955 Revision, World Health Organization.)

B. Foetal Death (Stillbirth)

"Foetal death is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the foetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles." (International Classification of Diseases, 1955 Revision, World Health Organization.) (At present, the Kansas law defines stillbirth as follows: "Stillbirth means a birth after 20 weeks gestation, which is not a live birth." A revision of the Kansas law defining stillbirth is planned which will change the basis of reporting stillbirths from 20 weeks gestation to 1 pound or 450 grams.)

C. Perinatal Death

A perinatal death is a death of a live born child within the first seven days of life or the death of a foetus who has reached the weight of 500 grams.

D. Infant Death Rate

Infant death rate is the number of infant deaths per 1,000 live births.

E. Neonatal Death Rate

Neonatal death rate is the number of neonatal deaths per 1,000 live births.

F. Foetal Death Rate

Foetal death rate (stillbirth death rate) is the number of stillbirths per 1,000 reported total births.

G. Perinatal Death Rate

Perinatal death rate is the number of perinatal deaths per 1,000 total births.

II. Laws and Regulations

A. Birth Registration

1. LAWS

65-2401. Uniform Vital Statistics Act. Definitions. As used in this act: (1) "Vital statistics" includes the registration, preparation, transcription, collection, compilation, and preservation of data pertaining to birth (adoption, legitimation), death, stillbirth, marriage, divorce, and data incidental thereto. (2) "Live birth" means the birth of a child who shows evidence of life after the child is entirely outside the mother. (3) "Stillbirth" means a birth after twenty (20) weeks gestation which is not a live birth. (4) "Dead body" means a lifeless human body or such parts of the human body or the bones thereof from the state of which it reasonably may be concluded that death recently occurred. (5) "Person in charge of interment" means any person who places or causes to be placed a stillborn child or dead body or the ashes, after cremation, in a grave, vault, urn or other receptacle, or otherwise disposes thereof. (6) "Board" means the state board of health. [L. 1951, ch. 355, § 1; June 30.]

65-2402. Duties of state board of health. The state board of health shall: (1) Establish a division of vital statistics with suitable offices properly equipped for the preservation of its official records. (2) Maintain a complete cross-index on all records filed under the provisions of this act. (3) Install a state-wide system of vital statistics. (4) Make and may amend, after notice and hearing, necessary regulations, give instructions and prescribe forms for collection, transcribing, compiling and preserving vital statistics. (5) Enforce this act and the regulations made pursuant thereto. [L. 1951, ch. 355, § 2; June 30.]

65-2409. Compulsory registration of births. Within the time prescribed by the board a certificate of every birth shall be filed with the local registrar of the district in which the birth occurred, by the physician, midwife, or other legally authorized person in attendance at the birth; or if not so attended, by one of the parents. [L. 1951, ch. 355, § 9; June 30.]

65-2410. Local registrar to prepare birth certificate. If neither parent of the newborn child whose birth is

unattended as above provided is able to prepare a birth certificate, the local registrar shall secure the necessary information from any person having knowledge of the birth and prepare and file the certificate. The board shall prescribe the time within which a supplementary report furnishing information omitted from the original certificate may be returned for the purpose of completing the certificate. Certificates of birth completed by a supplementary report shall not be considered "delayed" or "altered." [L. 1951, ch. 355, § 10; June 30.]

65-2411. Registration of foundlings; foundling report. (1) Whoever assumes the custody of a child of unknown parentage shall immediately report to the local registrar in writing: (a) The date and place of finding or assumption of custody; (b) sex, color or race, and approximate age of child; (c) name and address of the person or institution with whom the child has been placed for care, and (d) name given to the child by the finder or custodian. (2) The place where the child has been found or custody assumed shall be known as the place of birth and the date of birth shall be determined by approximation. (3) The report shall constitute the certificate of birth. (4) If the child is identified and a regular certificate of birth is found or obtained, the report shall be sealed and filed and may be opened only by court order. [L. 1951, ch. 355, § 11; June 30.]

65-2412. Registration of deaths and stillbirths. A certificate of every death or stillbirth shall be filed with the local registrar of the district in which the death or stillbirth occurred within three (3) days after the occurrence is known; or if the place of death or stillbirth is not known then with the local registrar of the district in which the body is found within twenty-four (24) hours thereafter. In every instance a certificate shall be filed prior to interment or other disposition of the body. [L. 1951, ch. 355, § 12; June 30.]

65-2413. Death and stillbirth certificates. (1) The funeral director or person in charge of interment shall file with the local registrar of the district in which the death or stillbirth occurred, or the body was found, a certificate of death or stillbirth within three (3) days after the occurrence. (2) In preparing a certificate of death or stillbirth the funeral director or person in charge of interment shall obtain and enter on the certificate the personal data required by the board from the persons best qualified to supply them. He shall present the certificate of death to the physician last in attendance upon the deceased or to the coroner having jurisdiction who shall thereupon certify the cause of death according to his best knowledge and belief. He shall present the certificate of stillbirth to the physician or other person in attendance at the stillbirth, who shall certify the stillbirth and such medical data pertaining thereto as he can furnish. (3) Thereupon the funeral director or person in charge of interment shall notify the appropriate local registrar, if the death occurred without medical attendance, or the physician last in attendance fails to sign the death certificate. In such event the local registrar shall inform the local health officer and refer the case to him for immediate investigation and certification of the cause of death prior to issuing a permit for burial, cremation or other disposition of the body. When the local health officer is not a physician or when there is no such officer, the local registrar may complete the certificate on the basis of information received from relatives of the deceased or others having knowledge of the facts. If the circumstances suggest that the death or stillbirth was caused by other than natural causes, the local registrar shall refer the case to the coroner for investigation and certification. [L. 1951, ch. 355, § 13; June 30.]

65-2414. Delayed determination of cause of death. If the cause of death cannot be determined within three (3) days, the certification of its cause may be filed after the prescribed period, but the attending physician or coroner shall give the local registrar of the district in which death occurred, written notice of the reason for the delay, in order that a permit for the disposition of the body may be issued. [L. 1951, ch. 355, § 14; June 30.]

65-2415. Form of certificates. The forms of certificates shall include as a minimum the items required by the respective standard certificates as recommended by the national office of vital statistics subject to approval of and modification by the board. The form and use of such certificate shall be subject to the provisions of section 23 [*]. [L. 1951, ch. 355, § 15; June 30.]

65-2416. Certificates as evidence. Certificates filed within six (6) months after the time prescribed therefor shall be prima facie evidence of the facts therein stated. Data therein pertaining to the father of a child are prima facie evidence only if the alleged father is the husband of the mother; if not, the data pertaining to the father of a child are not evidence in any proceeding adverse to the interests of the alleged father, or of his heirs, next of kin, devisees, legatees or other successors in interest, if the paternity is controverted. [L. 1951, ch. 355, § 16; June 30.]

65-2422. Disclosure of records. (1) The records and files of the division of vital statistics are open to inspection, subject to the provisions of this act and regulations of the board; but it is unlawful for any officer or employee of the state to disclose data con-

* Comparable section referred to in the Uniform Vital Statistics Act appears herein as § 65-2422.

tained in vital statistical records, except as authorized by this act and the board. (2) Disclosure of illegitimacy of birth or of information from which it can be ascertained, may be only upon order of a court in a case where such information is necessary for the determination of personal or property rights and then only for such purpose. (3) The state registrar shall not permit inspection of the records or issue a certified copy of a certificate or part thereof unless he is satisfied that the applicant therefor has a direct interest in the matter recorded and that the information therein contained is necessary for the determination of personal or property rights. His decision shall be subject, however, to review by the board or a court under the limitations of this section. (4) The board shall permit the use of data contained in vital statistical records for research purposes only, but no identifying use thereof shall be made. (5) Subject to the provisions of this section the board may direct local registrars to make a return upon the filing of birth, death and stillbirth certificates with them of certain data shown thereon to federal, state or municipal agencies. Payment by such agencies for such services may be made through the state registrar to local registrars as the board shall direct. [L. 1951, ch. 355; § 22; June 30.]

65-2423. Adoption cases. In cases of adoption the state registrar upon receipt of a certified order of adoption shall prepare a supplementary certificate in the new name of the adopted person; and seal and file the original certificate of birth with said certified copy attached thereto. Such sealed documents may be opened by the state registrar only upon the demand of the adopted person if of legal age or by an order of court. Upon receipt of the certified copy of a court order of annulment of adoption the state registrar shall restore the original certificate to its original place in the files. [L. 1951, ch. 355, § 23; June 30.]

65-2424. Legitimation. In cases of legitimation the state registrar upon receipt of proof thereof shall prepare a new certificate of birth in the new name of the legitimated child. The evidence upon which the new certificate is made and the original certificate shall be sealed and filed and may be opened only upon order of court. [L. 1951, ch. 355, § 24; June 30.]

65-2425. Institution inmates or patients; records and reports. Persons in charge of institutions for care of [or] correction or for treatment of disease, injury or childbirth shall record and report all statistical data required by this act relating to their inmates or patients. [L. 1951, ch. 355, §25; June 30.]

65-2434. Penalties. (1) Any person who willfully makes or alters any certificate or certified copy thereof provided for in this act, except in accordance with the provisions of this act, shall be fined not more than one thousand dollars ($1,000), or be imprisoned not exceeding six (6) months, or both fined and imprisoned. (2) Any person who knowingly transports or accepts for transportation, interment or other disposition a dead body without an accompanying permit issued in accordance with the provisions of this act, shall be fined not more than five hundred ($500). (3) Except where a different penalty is provided in this section, any person who violates any of the provisions of this act or neglects or refuses to perform any of the duties imposed upon him by this act, shall be fined not more than one hundred dollars (100). [L. 1951, ch. 355, § 34; June 30.]

39-739. Sight handicapped persons; reports to state board of health; forms. Every health and social agency , attending or consulting physician or nurse, shall report in writing to the state board of health, the name, age and residence of all patients or persons who are handicapped in vision, and who come within the definition of "the blind" as defined in section 39-702 of the General Statutes Supplement of 1947: *Provided,* The reporter may omit such registration upon the objection of the adult blind. Such report shall be made within thirty (30) days after a first consultation, interview or meeting of the agency, physician or nurse, and the blind person, and shall be on a form prescribed by the state board of health. [L. 1949, ch. 279, § 1; June 30.]

2. Regulations 28-34-109

g. The hospital shall prepare a birth certificate for every child born therein, obtain attending physician's signature thereon, and forward it to the local registrar of vital statistics within five days after date of birth.

3. Medical Data on the Revised Birth and Stillbirth Forms

a. (Medical Data Section of Certificate of Live Birth, illustrated, see page 494.)

b. (Medical Data Section of Certificate of Stillbirth, illustrated, see page 495.)

c. (Guide to Use of the Revised Birth and Stillbirth Certificates, illustrated, see pages 496 and 497.)

B. Newborn Infant Treatment of Eyes

1. Laws

65-153b. Newly born infant; treatment of eyes. Any physician or any person authorized by law to act as an obstetrician shall immediately upon the birth of an infant instill in the eyes of such newly born infant a prophylactic solution approved by the state board of health: *Provided, however,* That any person or parent shall not be required to employ such prophylactic if

objection is made by a written statement to the attending obstetrician within three days from the birth of said child: *And provided further,* That said written statement shall be attached to the birth certificate. [L. 1929, ch. 218, § 1; May 28.]

65-153c. Same; duty of physician and others. That any physician or any person authorized by law to act as an obstetrician in this state or any other person having the care of an infant, within six (6) months after its birth, who shall detect any inflammation, swelling or redness in the eyes of any such infant or any unnatural discharge therefrom, shall, if he be a physician, treat such child with the necessary prophylactic, or, if he be other than a physician, shall immediately report the condition and the location of such infant to the local board of health. [L. 1929, ch. 218, § 2; May 28.]

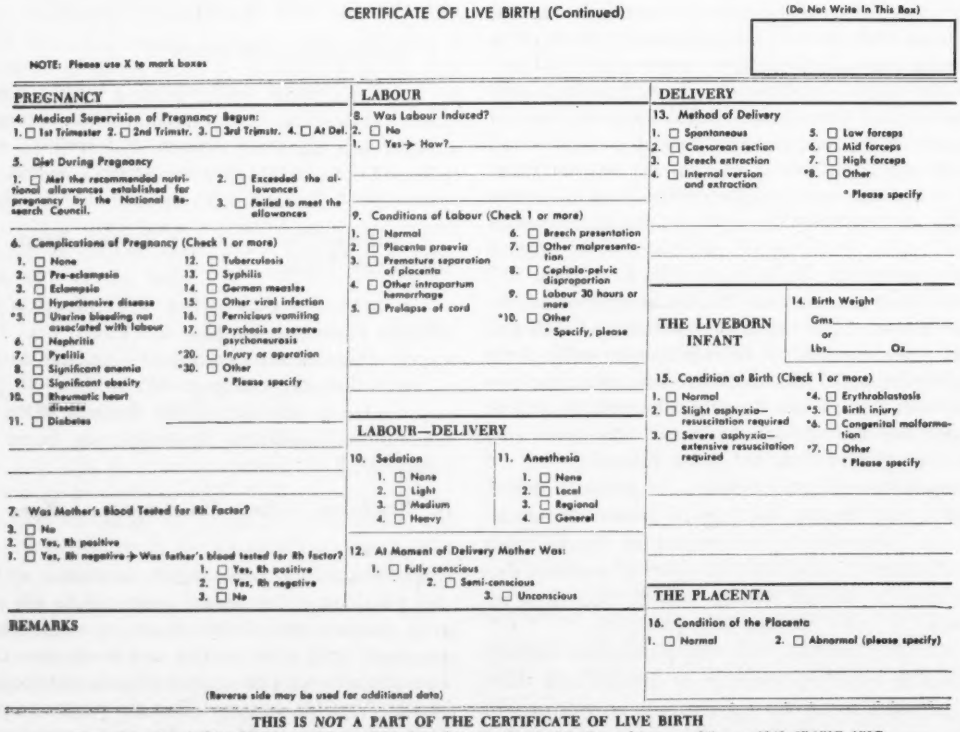
65-153d. Same; rules and regulations. It shall be the duty of the state board of health to make the necessary regulations for the enforcement of this act. [L. 1929, ch. 218, § 3; May 28.]

65-153e. Same; penalty for violating §§ 65-153b to 65-153e. Any person who shall willfully violate any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not more than five hundred ($500) dollars or by confinement in the county jail for six months. [L. 1929, ch, 218, § 4; May 28.]

2. REGULATIONS

Regulation regarding treatment of the eyes of newborn infants. Effective December 17, 1953.

"The only prophylactic solution approved for instillation into the eyes of newborn infants shall be a one per cent (1 per cent) aqueous solution of silver nitrate that has been prepared by the laboratory of the State Board of Health or a reputable pharmaceutical organization, placed in individual wax ampoules, and distributed in a container which bears clearly the name and percentage strength of the solution and an expiration date beyond which the product must not be used, except that hospitals approved for teaching in obstetrics and gynecology by the Council on Medical Education and Hospitals of the American Medical Association may on special request receive permission from the Board of Health to carry out controlled experiments with the use of solutions or suspensions of antibiotic or chemotherapeutic substances, after duly certifying that adequate records will be kept, that adequate controls will be maintained, that the results of the experimental studies will be made available to other physicians and hospitals, and that no harmful



CERTIFICATE OF LIVE BIRTH (Continued)

(Do Not Write In This Box)

NOTE: Please use X to mark boxes

PREGNANCY

4. Medical Supervision of Pregnancy Begun:
1. ☐ 1st Trimester 2. ☐ 2nd Trimstr. 3. ☐ 3rd Trimstr. 4. ☐ At Del.

5. Diet During Pregnancy
1. ☐ Met the recommended nutritional allowances established for pregnancy by the National Research Council.
2. ☐ Exceeded the allowances
3. ☐ Failed to meet the allowances

6. Complications of Pregnancy (Check 1 or more)
1. ☐ None
2. ☐ Pre-eclampsia
3. ☐ Eclampsia
4. ☐ Hypertensive disease
*5. ☐ Uterine bleeding not associated with labour
6. ☐ Nephritis
7. ☐ Pyelitis
8. ☐ Significant anemia
9. ☐ Significant obesity
10. ☐ Rheumatic heart disease
11. ☐ Diabetes
12. ☐ Tuberculosis
13. ☐ Syphilis
14. ☐ German measles
15. ☐ Other viral infection
16. ☐ Pernicious vomiting
17. ☐ Psychosis or severe psychoneurosis
*20. ☐ Injury or operation
*30. ☐ Other
* Please specify

7. Was Mother's Blood Tested for Rh Factor?
3. ☐ No
2. ☐ Yes, Rh positive
1. ☐ Yes, Rh negative → Was father's blood tested for Rh factor?
1. ☐ Yes, Rh positive
2. ☐ Yes, Rh negative
3. ☐ No

LABOUR

8. Was Labour Induced?
2. ☐ No
1. ☐ Yes → How?

9. Conditions of Labour (Check 1 or more)
1. ☐ Normal
2. ☐ Placenta praevia
3. ☐ Premature separation of placenta
4. ☐ Other intrapartum hemorrhage
5. ☐ Prolapse of cord
6. ☐ Breech presentation
7. ☐ Other malpresentation
8. ☐ Cephalo-pelvic disproportion
9. ☐ Labour 30 hours or more
*10. ☐ Other
* Specify, please

LABOUR—DELIVERY

10. Sedation
1. ☐ None
2. ☐ Light
3. ☐ Medium
4. ☐ Heavy

11. Anesthesia
1. ☐ None
2. ☐ Local
3. ☐ Regional
4. ☐ General

12. At Moment of Delivery Mother Was:
1. ☐ Fully conscious
2. ☐ Semi-conscious
3. ☐ Unconscious

DELIVERY

13. Method of Delivery
1. ☐ Spontaneous
2. ☐ Caesarean section
3. ☐ Breech extraction
4. ☐ Internal version and extraction
5. ☐ Low forceps
6. ☐ Mid forceps
7. ☐ High forceps
*8. ☐ Other
* Please specify

THE LIVEBORN INFANT

14. Birth Weight
Gms.
or
Lbs. Oz.

15. Condition at Birth (Check 1 or more)
1. ☐ Normal
2. ☐ Slight asphyxia—resuscitation required
3. ☐ Severe asphyxia—extensive resuscitation required
*4. ☐ Erythroblastosis
*5. ☐ Birth injury
*6. ☐ Congenital malformation
*7. ☐ Other
* Please specify

THE PLACENTA

16. Condition of the Placenta
1. ☐ Normal 2. ☐ Abnormal (please specify)

REMARKS

(Reverse side may be used for additional data)

THIS IS *NOT* A PART OF THE CERTIFICATE OF LIVE BIRTH

Kansas State Board of Health Report of Prenatal Serological Test As Required By General Statutes of Kansas, 1949, 65-153F, 153G

Serological Test Made: ☐ 1st Trimester ☐ 2nd Trimester ☐ 3rd Trimester ☐ At Delivery ☐ Not Performed

If No Test Made State Reason:

effects may be expected to accrue to newborn infants as a result of the use of such other solutions or suspensions. The State Board of Health shall furnish silver nitrate solution in wax ampoules without charge to any licensed hospital, maternity home, physician, or person authorized by law to act as an obstetrician."

C. Prenatal Serological Tests

1. LAWS

65-153f. Prenatal serological tests for syphilis. Each physician or other person attending a pregnant woman in this state during gestation, shall, with the consent of the patient in the case of each woman so attended, take or cause to be taken a sample of blood of such woman within fourteen days after diagnosis of same is made, and submit such sample for standard serological tests for syphilis to either a private laboratory or to the public health laboratory of the state board of health at Topeka, or to laboratories cooperating with the state board of health. The result of all laboratory tests shall be kept confidential and shall be reported on standard forms prescribed and furnished by the state board of health. [L. 1943, ch. 225, § 1; June 28.]

65-153g. Same; how reported. In reporting every Birth and stillbirth, physicians and others permitted to attend pregnancy cases and required to report births and stillbirths shall state on a separate sheet accompanying the birth certificate or stillbirth certificate, as the case may be, whether a blood test for syphilis has been made during such pregnancy upon a specimen of blood taken from the woman who bore the child for which birth or stillbirth certificate is filed, and if made the date when such test was made, and if not made, the reason why such test was not made. Neither the fact that such a test was or was not made or was or was not required by law nor the result of any such test shall appear upon the birth certificate or be certified to any person for any purpose. [L. 1943, ch. 225, § 2; June 28.]

65-153h. Same; misdemeanor. Any person willfully violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in a sum not less than ten dollars nor more than one hundred dollars. [L. 1943, ch. 225, §3; June 28.]

D. Licensure of Maternity Hospitals or Homes

1. LAW

65-501. Maternity hospitals or homes, and homes for infants or children; license from board of health.

CERTIFICATE OF STILLBIRTH (FETAL DEATH) (Continued)

(Do Not Write in This Box)

NOTE: Please use X to mark boxes

PREGNANCY

4. Medical Supervision of Pregnancy Begun:
1. ☐ 1st Trimester 2. ☐ 2nd Trimstr. 3. ☐ 3rd Trimstr. 4. ☐ At Del.

5. Diet During Pregnancy
1. ☐ Met the recommended nutritional allowances established for pregnancy by the National Research Council.
2. ☐ Exceeded the allowances
3. ☐ Failed to meet the allowances

6. Complications of Pregnancy (Check 1 or more)
1. ☐ None
2. ☐ Pre-eclampsia
3. ☐ Eclampsia
4. ☐ Hypertensive disease
*5. ☐ Uterine bleeding not associated with labour
6. ☐ Nephritis
7. ☐ Pyelitis
8. ☐ Significant anemia
9. ☐ Significant obesity
10. ☐ Rheumatic heart disease
11. ☐ Diabetes
12. ☐ Tuberculosis
13. ☐ Syphilis
14. ☐ German measles
15. ☐ Other viral infection
16. ☐ Pernicious vomiting
17. ☐ Psychosis or severe psychoneurosis
*20. ☐ Injury or operation
*30. ☐ Other
* Please specify

7. Was Mother's Blood Tested for Rh Factor?
3. ☐ No
2. ☐ Yes, Rh positive
1. ☐ Yes, Rh negative → Was father's blood tested for Rh factor?
1. ☐ Yes, Rh positive
2. ☐ Yes, Rh negative
3. ☐ No

LABOUR

8. Was Labour Induced?
2. ☐ No
1. ☐ Yes → How?

9. Conditions of Labour (Check 1 or more)
1. ☐ Normal
2. ☐ Placenta praevia
3. ☐ Premature separation of placenta
4. ☐ Other intrapartum hemorrhage
5. ☐ Prolapse of cord
6. ☐ Breech presentation
7. ☐ Other malpresentation
8. ☐ Cephalo-pelvic disproportion
9. ☐ Labour 30 hours or more
*10. ☐ Other
* Specify, please

LABOUR—DELIVERY

10. Sedation
1. ☐ None
2. ☐ Light
3. ☐ Medium
4. ☐ Heavy

11. Anesthesia
1. ☐ None
2. ☐ Local
3. ☐ Regional
4. ☐ General

12. At Moment of Delivery Mother Was:
1. ☐ Fully conscious
2. ☐ Semi-conscious
3. ☐ Unconscious

DELIVERY

13. Method of Delivery
1. ☐ Spontaneous
2. ☐ Caesarean section
3. ☐ Breech extraction
4. ☐ Internal version and extraction
5. ☐ Low forceps
6. ☐ Mid forceps
7. ☐ High forceps
*8. ☐ Other
* Please specify

THE STILLBORN INFANT

14. Birth Weight
Gms _____
or
Lbs _____ Oz _____

15. Condition at Birth (Check 1 or More)
1. ☐ Normal appearance
2. ☐ Some maceration
3. ☐ Severe maceration
*4. ☐ Birth injury
*5. ☐ Congenital malformation
*6. ☐ Other
* Please Specify

THE PLACENTA

16. Condition of the Placenta
1. ☐ Normal 2. ☐ Abnormal (please specify)

REMARKS

(Reverse side may be used for additional data)

THIS IS *NOT* A PART OF THE CERTIFICATE OF STILLBIRTH

Kansas State Board of Health Report of Prenatal Serological Test As Required By General Statutes of Kansas, 1949, 65-153F, 153G

Serological Test Made: ☐ 1st Trimester * ☐ 2nd Trimester ☐ 3rd Trimester ☐ At Delivery ☐ Not Performed

If No Test Made State Reason: _____

A GUIDE TO THE USE OF THE REVISED

General Statement

The purpose of the revised "medical and health" sections is to obtain medical information which ultimately will improve medical care. Questionnaires of this sort have many weaknesses, as they are designed around situations in which everything is usually "normal." It is expected that the good physician will appreciate these weaknesses, and compensate for them by supplying additional information in instances which depart from the average in such a way that they are not properly explained by the routine items of information. Space for additional material is provided in a number of blank spaces, in the section entitled "Remarks," and on the whole reverse sides of the lower portions of the two certificates.

In many cases, significant information becomes available after the filing of a birth or stillbirth certificate. An apparently well baby may be found to have a congenital malformation, or the autopsy report on a fetus may precisely fix the cause of death. Such information may be transmitted by a letter addressed to: The Registrar of Vital Statistics, State Board of Health, Topeka, Kansas, giving the name, date of birth and place of birth of the baby, and it will then be added to the certificate previously filed.

Section by Section Commentary

1. Length of Pregnancy

This question has been retained because of its possible importance in multiple pregnancies, and certain individual cases, in which birth weight may not be an adequate index of the maturity of the infant.

2. Weight of Fetus

The weight may be given in pounds and ounces, or in Grams. Birth weight is probably the most important single variable in perinatal mortality, and should be obtained in all cases. (See also remarks for Section 14, below.)

3. Legitimacy

Legitimate and illegitimate infants have different survival rates, and will differ in certain other medical respects. These differences cannot be properly evaluated unless the physician categorizes each infant with considerable accuracy, even though he is not expected to be an expert on the finer legal aspects of legitimacy. In general, a baby is regarded as legitimate if his mother was married at the time of conception or any time afterward prior to delivery. Contrariwise, the infant is illegitimate if she was not married at any time during the pregnancy. (The question on legitimacy touches the vexed question of the physician's responsibility in entering the name of the father on the certificate. In essence, the physician is required by law to ask the mother who the father was, and to enter the name she gives on the certificate. She may withhold the name, and the entry should be made "Name Withheld by Mother" (in which case an effort should be made to get age, nationality, etc.). She may state that she cannot identify the father, in which case, *and only in which case,* the entry should be made as "Unknown." The physician is in no way responsible, legally or morally, for the accuracy of the information given by the mother.)

4. Medical Supervision of Pregnancy Begun

When did the patient first report for prenatal care? The importance of this question is obvious. In borderline cases, or when the physician cannot be sure without checking distant records, the best possible estimate should be given in the expectation that small errors will cancel themselves out in any considerable number of certificates. It is assumed that after a woman first reports for prenatal care, she will return to her physician with reasonable regularity thereafter until pregnancy is terminated. *For the occasional patient who does not follow this rule, a note should be included under "Remarks."*

5. Diet During Pregnancy

There is conflicting evidence about the importance of diet during pregnancy, insofar as it affects the character of labour and delivery, and the quality of the newborn baby. It is possible that a defective diet prior to conception may lead to certain abnormalities, and a defective diet during the latter part of pregnancy, to others. The only yardstick available at present is the recommendation of the National Research Council, which in effect calls for a better-than-average nutritional intake during pregnancy, and particularly for a specific increase in *protein* not accompanied by an increase in fats or carbohydrates. To meet the National Research Council's allowances, the diet must be very good, and strong on protein. To exceed them, the diet must be absolutely superior. *The average diet will more often than not fall short.*

An explanatory note should be given under "Remarks" (1) when the diet is so bad that "Failed to meet the recommended allowances" is an understatement, or (2) in special cases, as when a patient enters pregnancy in such a poor plane of nutrition that even a good diet does not bring her to term well nourished.

6. Complications of Pregnancy

The more common and important complications have been listed, and space left for the physician to add any others that may have been significant for his particular patient. When more than one complication is listed, it will be necessary for the non-medically

BIRTH AND STILLBIRTH CERTIFICATES

trained coder to assign priority of importance. This will be done by a rubric or "rule," a complicated guide-book which gives the priority of every condition *based on the usual or average significance of the complication.* For example, syphilis would usually be considered more important than pernicious vomiting, and less important than eclampsia. The rubric works well enough for average cases, and very badly for atypical ones. *For mothers who depart from the average, the physician should make a note in the blank space provided as to the relative importance of the several complications,* or an explanatory statement under "Remarks."

7. Was Mother's Blood Tested for RH Factor

The items under this heading are self-explanatory. It was not felt advisable to specifically query the less significant A and B incompatibilities, but certainly these should be reported if known, with a note about the effect on the child, if any.

8. Was Labour Induced

It is taken for granted that when labour has been induced, the reason for the induction will appear elsewhere on the certificate, usually under "Complications of Pregnancy." When this is not the case, an entry should be made under "Remarks" to explain the indications.

9. Conditions of Labour

A list of the more common conditions of labour is presented, and space left for entering additional ones. As with "Complications of Pregnancy," more than one item may be checked, and when more than one item is checked a priority of importance will be assigned by a rubric that is *based on the usual or average significance of the condition.* For example, premature separation of the placenta is usually a catastrophic sort of event for both mother and baby that would usually outrank any other item on the list. It is not always catastrophic, however, and in such cases a punch card may be badly miscoded unless the physician supplies additional information, in the blank lines of Section 9 or under "Remarks," to explain the facts for his individual patient.

"Premature labour" is not a listed condition, and need not be mentioned, and the information is automatically available from the gestational age and birthweight.

10-11-12. Sedation and Anesthesia

It has long been held that sedation and anesthesia employed during the first two stages of labour have a measurable effect upon the viability and integrity of the infant. The effect is not a constant one, however, and it appears to be subject to many variables. The joined questions—10, 11 and 12, attempt to collect fixed items of information so that they may be correlated with such other factors as complications of pregnancy and labour, and birthweight.

No. 10 asks for the level of sedation in the terms usually employed by the physician. "Light" may be taken as nominal sedation, using the minimum amounts of a drug necessary to produce an observable pharmacologic effect. "Heavy" is extreme sedation, with complete removal of cortical control. "Medium" is somewhere in between.

No. 11 is self-explanatory. Several different kinds of anesthesia may be used for the same patient, and therefore more than one category may be checked.

No. 12 is a control question for the two preceding ones. There are an infinite number of possible combinations of drugs, levels of administration, and timing of dosage. It is not possible to obtain all the details with any reasonable sort of questionnaire. The state of consciousness of the mother at the moment of delivery, however, gives much information as to the net effect of the sedative and anesthetic agents used—at the particular moment when their effect on the respiratory and other vital centers of the infant becomes significant.

13. Method of Delivery

The common methods of delivery are listed, and a few uncommon ones. Multiple check-offs in this section should be rare, and usually self-explanatory, as with application of forceps to the aftercoming head, or an attempt at vaginal delivery followed by Cesarean section.

14. Birth Weight

It will be noted that this item of information is requested once in the upper portion of the certificates, and again in the lower section. It was necessary to have one written-in item appear in both places for purposes of statistical accuracy, and the birth weight appeared to be the item that could be given most easily.

15. The Liveborn Infant or the Stillborn Infant

These sections ask for general descriptive information about the condition or state of the infant as it appeared to the physician at the time of delivery. They are obviously of great interest in any study of perinatal mortality, and should be filled out as informatively as possible. (For example, congenital malformations are frequently multiple, and in such cases *all* the malformations ought to be noted even if this means spilling over into the section on "Remarks" or even to the back of the certificate.)

16. The Placenta

The desired information in this case relates to the obvious normality or abnormality of the placenta on inspection (although information obtained from microscopic studies will be gratefully received). Such information is important as it relates to postmature infants, and to the effects of certain of the complications of pregnancy. *The only matters of interest are things that might have affected the infant prior to birth:* an incomplete placenta, indicating retention, while obviously of great obstetric interest, does not affect the infant and should not be noted as an abnormality.

The Report of the Prenatal Serologic Test

Kansas law requires every physician to report the performance of a prenatal serologic test, or to submit a statement of the reason that no test was made. Previously this report had to be submitted on a separate form which was attached to the birth certificate. The final entry of the new "Medical and Health" sections meets statutory requirements and should be much more convenient for the physician.

That on and after July 1, 1919, it shall be unlawful for any person, firm, corporation or association to conduct or maintain a maternity hospital or home, or boarding, receiving or detention home for infants under three years of age or for children under sixteen years of age as herein defined, without having in full force a written license thereof from the state board of health: *Provided,* That nothing in this act shall apply to any state institution maintained and operated by the state. [L. 1919, ch. 210, § 1; June 17; R. S. 1923, § 65-501.]

2. Regulations

No maternity home shall accept for care any pregnant woman who has an important complication of labor or preganacy unless the attending physician certifies in writing that the patient is to be admitted as an emergency because hospital care is not immediately available. The term "important complication of pregnancy or labor" shall include: toxemia of pregnancy, hypertension, cardiac disease, chronic nephritis, tuberculosis, diabetes, previous delivery of any erythroblastotic infant or previous delivery by Cesarean Section, premature separation of the placenta, placenta previa, *premature labor,* twin pregnancies, gross feto-pelvic disproportion, mal-presentations of the fetus commonly involving internal manipulation or application of forceps at a higher level than the outlet, breech presentations, and any other condition which carries an important risk to mother or child over and above the risk of normal delivery.

No Grade Two home for unmarried mothers shall undertake to deliver on its premises any pregnant woman who has an important complication of pregnancy or labor as defined above. It is recommended that Grade One homes for unmarried mothers, and maternity clinics, arrange to deliver such patients elsewhere.

Facilities for Care of the Newborn. Every maternity home, maternity clinic, or home for unmarried mothers (1) shall provide a separate room to house newborn infants that will substantially comply with the requirements for a nursery in the hospital standards of this state, or (2) may room infants with their mothers provided that only two individuals are allowed to visit any one mother during her stay at the home, that no more than three infants and three mothers are roomed together, and that a sufficient amount of space is assigned to each mother and child (at least eighty square feet). Facilities must be provided for administering heat and oxygen to a newborn infant as required. Each infant shall be provided with a separate bassinet on an individual stand. A thermometer shall be provided for each infant if temperatures are taken routinely. All care shall be given to each infant in its own bassinet; the use of common bathing or dressing tables is prohibited. Scales shall be freshly covered for the weighing of each infant. All clothing, diapers, etc., used shall (1) either be provided and laundered by the maternity home or (2) be autoclaved before use if furnished by the parents. Attendants shall wash their hands and dry them on disposable paper towels before and after handling an infant.

No maternity home, or maternity clinic, or home for unmarried mothers shall continue to keep an infant after its mother's discharge *unless* (1) the infant is one weighing less than five lbs. at birth who is kept at the home under the written orders of the attending physician or (2) the infant is an orphan, or dependent, or neglected, or an illegitimate child, and the home has received written notification from the local county board of welfare, or an accredited agent of a state-licensed child welfare agency, that foster placement for the child is being sought. Under no circumstances shall such boarding care be given in maternity homes or maternity clinics for a period of longer than four weeks after the birth of the child, and under no circumstances shall any maternity home,

clinic, or home for unmarried mothers receive back an infant for boarding care after it has once been discharged.

Preparation of Infant Formulas. All milk mixtures and other fluids offered to newborn infants shall be prepared according to the technique of terminal sterilization, as defined in the Kansas Hospital Standards.

E. Hospital Standards

1. Laws

65-425. Licensing, inspection and regulation. Definitions. As used in this act: (a) "Hospital" means a place devoted primarily to the maintenance and operation of facilities for the diagnosis, treatment or care for not less than twenty-four hours in any week of four or more nonrelated individuals suffering from mental or physical illness, disease, injury, or deformity, or a place devoted primarily to providing for not less than twenty-four hours in any week of obstetrical or other medical or nursing care for four or more nonrelated individuals. The term "hospital" shall include public health centers, but shall not include maternity homes or institutions primarily devoted to domiciliary care, such as boarding homes and homes for the aged or to homes or institutions which, as an exercise of religious freedom, are conducted in conformity with the practice of the religious tenets of any church in the ministration to the sick or suffering by spiritual means, and provided that quarantine regulations relating to contagious diseases are not infringed upon. (b) "Person" means any individual, firm, partnership, corporation, company, association, or joint stock association and the legal successor thereof. (c) "Governmental unit" means the state, or any county, municipality, or other political subdivision thereof; or any department, division, board or other agency of any of the foregoing. (d) "Licensing agency" means the state board of health. [L. 1947, ch. 329, § 1; L. 1949, ch. 328, § 1; June 30.]

65-426. Purpose of act. The purpose of this act is to provide for the development, establishment and enforcement of standards: (1) For the care and treatment of individuals in hospitals; and (2) for the construction, maintenance and operation of hospitals, which, in the light of advancing knowledge, will promote safe and adequate treatment of such individuals in hospitals. [L. 1947, ch. 329, § 2; June 30.]

65-427. Licensure. After July 1, 1948, no person or governmental unit, acting severally or jointly with any other person or governmental unit shall establish, conduct or maintain a hospital in this state without a license under this law. [L. 1947, ch. 329, § 3; June 30.]

65-431. Rules, regulations, and enforcement. The licensing agency subject to the approval of the advisory hospital council, shall adopt, amend, promulgate and enforce such rules, regulations and standards with respect to all hospitals or different types of hospitals to be licensed hereunder as may be designed to further the accomplishment of the purposes of this law in promoting safe and adequate treatment of individuals in hospitals in the interest of public health, safety and welfare: *Provided,* That no rule or regulation shall be made by the licensing agency which would discriminate against any practitioner of the healing art who is licensed to practice in this state: *Provided further,* That boards of trustees or directors of institutions licensed pursuant to the provisions of this act shall have the right to select the professional staff members of such institutions and select and employ internes, nurses, and other personnel and no rules, regulations or standards of the licensing agency shall be valid which, if enforced, would interfere in such selection or employment: *And provide further,* That in formulating rules and regulations, the agency shall give due consideration to the size of the hospital, the type of service it is intended to render, the scope of such service and the financial resources in and the needs of the community which such institution serves. [L. 1947, ch. 329, § 7; June 30.]

2. Regulations

The following is from "Hospital Standards, Rules and Regulations, Kansas State Board of Health, Hospital Facilities Division."

28-34-115. Maternity Nursing Service

a. In larger hospitals with a well-defined obstetrical department, the nurses assigned to that department shall not care for other types of patients. In small hospitals where division of nursing service is impossible, strict medical asepsis shall be observed.

b. Maternity patients shall not be placed in wards or rooms with patients other than maternity patients. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-116. Provisions and Equipment for Delivery

a. The delivery room shall be used for delivery of non-infected patients and for newborn circumcision. Patients with any evidence of infection or possible infection shall be delivered in a room where medical asepsis can be observed.

b. The operating room shall not be used for delivery except in the case of Caesarean section or for non-infected patients when the delivery rooms are in use.

c. There shall be a suitable delivery table equipped for operative deliveries and treatment of

shock. The pad shall be protected with waterproofed sheeting in good condition.

d. The delivery room shall be equipped with suitable tables or stands for instruments, utensils, and necessary supplies.

e. An adequate supply of utensils and sterile linen, dressings, gloves, and face masks shall be in readiness for all deliveries.

f. Facilities for administration of oxygen and sterile equipment for administration of blood transfusions and intravenous or subcutaneous therapeutic solutions shall be readily available. A unit of plasma shall be kept in the hospital at all times.

g. There shall be ready at all times equipment for general anesthesia, and a minimum of drugs and anesthetics ordinarily needed for use.

h. A stretcher or carrier shall be provided for returning patient to her own room.

i. The same aseptic technique shall prevail as at any surgical operation. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-117. Equipment for Reception of Newborn Infant

a. A heated bassinet, crib or incubator shall be ready in the delivery room for reception and care of the newborn infant. Provision shall be made for keeping the infant warm and protected from exposure to infection during transit from delivery room to the nursery. Attendants, transporting an infant, shall wear a mask, gown, and head covering. An elevator, when used by an attendant transporting an infant, shall be free of other passengers.

b. There shall be equipment for resuscitation as ordered by the physician. Facilities for the administration of oxygen shall be available.

c. Silver nitrate ampoules for the prevention of ophthalmia of the newborn shall be kept on hand and instillation of silver nitrate shall be done before the infant is removed from the delivery room.

d. Every infant shall be marked for identification before it is removed from the delivery room by one of the reliable methods in common use, such as tape or name beads. Information shall be sufficient to identify infant with one mother, and one only. If written tags are used, ink shall be waterproof. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-118. Provisions for Postpartum Mothers

The patient shall be under close supervision of a professional nurse or physician during the time when she is recovering from the effects of anesthesia and for at least one hour to observe the fundus and to report to the physician any symptoms of hemorrhage. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-119. Provisions for Infants

a. A nursery shall be provided for the care of newborn infants and shall not be used for any other purpose.

b. Rooms in which rooming-in is practiced shall not be considered nurseries unless they contain more than two infants, in which case all requirements for an infant nursery shall apply.

c. Any newborn infant suspected of or having infection or any infant born outside of the hospital or who has been exposed to actual or potential infection shall be placed in a suspect nursery or room that can be used as a suspect nursery. Such infants shall be kept in the suspect nursery until either suspicions are proved unwarranted or a diagnosis of disease is made. Responsibility and authority for transfer of an infant from the main nursery to the suspect nursery shall be vested primarily in the nurse in charge of the main nursery at any given time. The suspect nursery shall be staffed by nurses who do not work in the main nursery, and strict isolation technique shall be observed there.

d. Immediate segregation and isolation of all infants with diagnosed infections such as diarrhea, infectious dermatitis, or respiratory infections shall be provided in a separate room off the obstetrical floor or outside the maternity unit. All equipment shall be kept completely separate for each such infant.

e. No persons other than physicians, nurses, technicians, and individuals responsible for maintenance shall be admitted to any room used as a nursery. Everyone not working in the nursery exclusively shall put on a fresh cap, gown, and mask, and shall wash hands, before entering.

f. Dry sweeping and dusting in nurseries is prohibited. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-120. Nursery Furnishing and Equipment

a. A separate crib or basket shall be provided for each infant. Cribs shall have firm mattresses, covered with waterproof sheeting and washable pads. Washable inside linings must be provided to obviate danger of injury to infants from crib bars and as a preventive measure against the transmission of infection except when one-piece plastic bassinets are provided. Freshly laundered linings, blankets, and linen shall be furnished for each new occupant. Openings in sides of bassinets shall not be large enough to allow passage of infant's head. The use of racks or bassinet stands which hold more than one bassinet is prohibited.

b. The use of common bathing or dressing tables is prohibited as a preventive measure against transmission of infection. All bathing, diaper changing,

and treatments shall be carried out in the bassinet or on its separate shelf or drawer.

c. One rectal thermometer shall be provided for each infant. Thermometers shall be kept in antiseptic solution in individual containers.

d. Individual bottles of oil (if oil is used), individual wash basins (if daily baths are given), and an individual 24-hour supply of linen shall be provided for each infant and stored, with the thermometer, in the bassinet stand.

e. Accurate scales shall be provided; the weighing pan shall be freshly covered for each infant.

f. A separate utensil, preferably a self-contained electrical apparatus, shall be provided for warming infant formulas.

g. In each nursery there shall be at least one covered metal container for soiled diapers, with foot control pedal and removable paper or lining which can be disposed of or laundered. In each nursery there shall be at least one linen hamper with removable liner for soiled linen other than diapers.

h. Incubators suitable for the care of premature infants shall be provided in the ratio of at least one incubator to ten bassinets or fraction thereof.

i. If hot-water bags are used, water shall be tested with the hands and they shall be enclosed in a protective covering before being placed in the crib. Electrical heating pads shall not be used in the cribs of infants.

j. A large wall clock, visible from all parts of the nursery, shall be provided. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-122. Preparation of Feedings

a. There shall be a special area for the preparation of milk mixtures, equipped with a sterilizer, sink, handwashing facilities, and storage space. This area shall at least be out of the line of traffic, and is preferably enclosed as a separate room.

b. There shall be a refrigerator of a size in keeping with capacity of nursery, equipped with a thermometer, capable of holding a 24-hour supply of individually bottled milk mixtures. A temperature of 40-45 degrees Fahrenheit shall be maintained in it. It shall be used for formulas exclusively.

c. Bottles, caps, and utensils used in the preparation of milk mixtures shall be throughly washed and rinsed before each use. Feeding equipment from infected or suspected infants shall be sterilized before being returned to the milk room.

d. Nipples shall be throughly washed, rinsed, and sterilized by boiling before each use.

e. All formulas and fluids offered to newborn infants (or other infants under the age of one year) shall be prepared by the following method, known as terminal or post sterilization (for exceptions see section f. below): Milk mixtures and other fluids offered to infants shall be poured into clean individual bottles at the time of preparation. A sterilized nipple shall then be attached to each bottle and covered with a cap of paper, metal or glass so constructed that nipple is completely enclosed. The entire unit shall then be subject to terminal sterlization with steam, under pressure of not less than six pounds (110 degrees Centigrade or 230 degrees Fahrenheit) for not less than ten minutes, or by flowing steam at a temperature of not less than 100 degrees Centigrade or 212 degrees Fahrenheit for not less than thirty minutes. The temperature of the formula or fluid, as determined by periodic testing, shall be not less than 93 degrees Centigrade or 200 degrees Fahrenheit at the end of the heating period.

f. Lactic acid milk, protein SMA, Nutramigen, formulas containing soybean products, meat, cereal or lactic acid, and fruit juices, which are altered by this process, may be offered without such terminal heating but shall be prepared with and stored in presterilized equipment.

g. Bottles shall not be propped in bassinets when infants are fed in the nursery. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-122. Nursery Nursing Service

a. Nursing care shall be provided day and night in the ratio of at least one nurse for each twelve infants (preferably eight).

b. Auxiliary workers shall not work in the nursery except under the close and immediate supervision of a registered nurse in the maternity division. (Authorized by G. S. 1949, 65-431; effective September 1, 1953.)

28-34-123. Clothing and Linen

a. Infants' clothing shall be furnished by the hospital. Freshly laundered or disposable diapers only shall be used, and shall be available in the necessary quantity. When the infant is discharged, clothing furnished by its parents shall not be brought into the nursery.

b. Diapers shall not be washed by nurses assigned to the nursery. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-124. Pediatrics

In hospitals not maintaining a pediatric service, children shall not be placed in the newborn nursery. Hospitals maintaining pediatric service shall provide facilities for the care of children, apart from the services for adult patients and from the newborn nursing service, and there shall be proper facilities and procedures for the isolation of children with infectious, contagious or communicable conditions.

a. Hospitals providing pediatric care shall be evaluated and approved on the basis of the size of the service and competency of personnel, facilities, policies, and procedure. A hospital providing care for children shall have registered nursing personnel commensurate with the needs of the hospital and the size of the service.

b. The newborn nursery and the pediatric department shall not be used for boarding care of illegitimate, dependent, neglected or defective children. If the hospital is, at the end of the period for which progressive medical care is indicated, unable to properly discharge such infants, their presence shall be reported to the Division of Child Welfare Service of the State Department of Social Welfare for suitable action by such department. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

i. A patient being admitted in a condition of abortion shall furnish a signed statement acknowledging her condition and certifying that the abortion was not induced in the hospital or by a member of the hospital medical staff.

j. To reduce the electrostatic spark hazard, physicians, nurses or persons working in the operating rooms and delivery rooms shall be properly attired in scrub gowns, operating gowns or operating suits, and conductive footwear. Street clothes or woolen, nylon or rayon attire is prohibited.

k. Smoking shall not be permitted in operating and delivery suites, including corridors within the suites. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

28-34-128. Anesthetic Service

a. All equipment for the administration of anesthetics shall be readily available, kept clean, maintained in good repair and shall comply with the National Fire Protection Association standards.

b. There shall be provided a suction apparatus and resuscitation apparatus and equipment for the administration of oxygen.

c. In hospitals not providing an organized anesthetic service, all anesthetics shall be given under the supervision of a competent staff physician.

d. No anesthestic shall, for any reason, surgical or otherwise, be administered, except in extreme emergencies, until the patient has had a preliminary physical examination, including necessary laboratory procedures.

e. After the administration of an anesthetic, the patient shall be under the constant observation of an individual specifically assigned to that duty until the patient has regained consciousness or until the effects of the anesthetic have disappeared. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

c. The nursing department shall consist of nursing units which are oriented so that each patient's room receives sunlight during some part of the day. The nursing units shall have convenient relationship with the surgical and obstetrical suites, adjunct diagnostic and treatment facilities, and service facilities. Patients' rooms, including labor rooms, shall be outside rooms with outside windows for natural light and ventilation and shall communicate directly with a corridor. No patients' room shall be below grade. Each bedroom shall have a lavatory with non-manual faucets. Separation of medical, surgical, and obstetrical patients shall be provided in small hospitals that do not have separate nursing units for these patients. Room areas allow 100 sq. ft. in single bed rooms and 80 sq. ft. per bed in multi-bed rooms, with at least 3 feet between beds and a maximum of 4 beds. Screens shall be provided for privacy in multi-bed rooms. Each nursing unit shall be limited to approximately 35 beds and shall have the following auxiliary facilities as required: nurses' station; utility room; patients' toilet facilities; bathroom; bedpan facilities; floor pantry; linen and supply storage; janitor's closet; nurses' toilet room; and isolation suite with sub-utility room unless contagious disease nursing unit is available elsewhere in the hospital.

d. Nursery rooms shall be outside rooms with windows for natural light and shall have no direct communication with a public corridor or other non-nursery space. Each nursery room and each examination and work room shall be equipped with a lavatory with knee or foot-controlled faucets. An examination and work room, which shall communicate with a corridor, shall be provided for each single nursery unit or for each two full term nursery units. View windows shall be provided between the corridor and nursery rooms and between the nursery rooms and their respective examination and work rooms. The room area for a full term nursery shall allow a minimum of 24 sq. ft. per bassinet with a maximum of 12 bassinets. A separate premature nursery with an examination and work room will be required in hospitals with 25 or more maternity beds and shall have a minimum of 30 sq. ft. per bassinet with a maximum of 6 bassinets. In hospitals with an annual average number of births in excess of 100, a suspect nursery and examination and work room shall be provided and shall have 40 sq. ft. per bassinet with a maximum of 6 bassinets. The number of bassinets in smaller suspect nurseries shall equal approximately 10 per cent of the full term bassinets. A formula

room shall be provided either in the nursery area or the kitchen area. Facilities shall be provided in the formula room for washing, rinsing, and filling bottles and for terminal sterilization unless the central sterilizing facility is to be used. Refrigerators shall be provided as required for storage of formula in the nursery and formula room areas.

f. Central sterilizing facilities shall be provided as required by the size of the hospital and shall consist of sterilizing and sterile storage space and an adjoining room for storage of unsterile supplies.

g. The obstetrical department shall be located to prevent traffic through it to any other part of the hospital and shall be completely separate from the surgical department. The facilities shall consist of suitable delivery room or rooms, labor room or rooms, and the following auxiliary facilities: scrub-up space and sink with knee or foot-controlled faucets; clean-up or utility room; janitor's closet; and sub-sterilizing room if necessary to supplement the central sterilizing facilities. In hospitals of 100 or more beds, the following additional facilities shall be provided as required: father's waiting room; supervisor's station; doctors' locker room with toilet; nurses' locker room with toilet; sterile supply storage; and stretcher alcove. A patient's bedroom may be used as a labor room in hospitals of 15 beds or less.

h. The emergency department shall be separate from the surgical and obstetrical departments and shall have a separate entrance from the ambulance court or service court. Minimum facilities shall consist of an accident room with scrub-up sink with knee or foot-controlled faucets and an adjacent toilet room.

28-34-202. Nurses' Call System

b. Operating, delivery, emergency, and recovery rooms, rooms used for children, and nurseries, shall have one emergency call station each for use of the nurse. Emergency call stations for use of patients shall be installed in patients' toilet and bath rooms.

28-34-178. Ventilation

e. Operating rooms, delivery rooms, and nurseries shall be provided with supply and exhaust ventilating systems which will change the air at least eight times an hour. No recirculation of air will be permitted in these rooms. The air supply inlet in operating and delivery rooms shall be located near the ceiling and the exhaust outlet near the floor, and the system and equipment shall conform with the recommendations of the National Fire Protection Association for safe practice for hospital operating rooms.

f. If air conditioning is to be provided, first consideration shall be given to its installation in the operating, delivery, and nursery rooms. Air conditioning systems for operating and delivery rooms shall conform with the recommendations of the National Fire Protection Association for safe practice for hospital operating rooms.

28-34-199. Lighting Outlets and Switches

c. Operating and delivery rooms shall have general illumination and special lights for the tables, each on an independent circuit. Each operating room shall have an x-ray film illuminator. (Authorized by G.S. 1949, 65-431; Effective October 1, 1958.)

28-34-201. Explosion-Proof Installations and Ungrounded Circuits

a. All electrical installations and equipment in operating, delivery, emergency, anesthesia induction rooms, and anesthetic storerooms shall be explosion-proof, if less than 5 feet above the floor, as recommended by the National Fire Protection Association.

b. The installation of ungrounded circuits and the grounding of equipment in anesthetizing and anesthetic storage locations shall comply with the recommendations of the National Fire Protection Association. (Authorized by G.S. 1949, 65-431; Effective October 1, 1958.)

28-34-203. Emergency Lighting

a. Emergency lighting shall be provided for exits, stairs, patient corridors, nurseries, and operating and delivery rooms. Battery operated lamps or flashlights shall be provided as a minimum for emergency lighting in existing hospitals which do not have an emergency power supply and in other medical facilities buildings. Battery operated lamps and flashlights for use in hospital operating and delivery rooms shall have vapor-proof switches.

c. The use of an open flame type of light is prohibited in operating and delivery rooms and other anesthetizing locations. (Authorized by G.S. 1949, 65-431; Effective October 1, 1958.)

28-34-204. Clock System

A clock system shall be complete with a master clock and time indicator clocks in administrative offices, lobby, and work areas as required. Clocks shall be provided in the nurses' station, operating and delivery rooms, and nursery. (Authorized by G.S. 1949, 65-431; Effective October 1, 1958.)

28-34-208. Refrigerators

b. Refrigerators of adequate capacity shall be

provided in all areas where needed, such as kitchens, floor pantries, utility rooms, formula room, nursery workroom, drug room, and blood bank. A minimum of two separate sections or boxes shall be provided in the main kitchen, one for meats and dairy products and one for general storage.

F. Communicable and Other Reportable Diseases

1. LAWS

65-117. Report by physician of dangerous diseases, and placard of premises. Whenever any physician shall know or have reason to believe that any person whom he has been called to visit, or any person sick within his knowledge without the care of a physician, is sick with or has died of any infectious, contagious or communicable disease, he shall immediately give notice thereof to the board of health or health officer having jurisdiction over the area. In the case of those diseases required to be placarded, the health officer shall at once fasten or cause to be fastened a placard not less than twelve inches square, with the name of the disease written or printed thereon in large characters, upon the front door or other conspicious part of the building wherein the sickness prevails; such placard to be maintained until such time as the health officer, or in his absence, the attending physician, acting under the authority and approval of the health officer, is satisfied that the premises are safe for the resumption of normal use. [L. 1901, ch. 285, § 1; Feb. 15; R. S. 1923, § 65-117; G. S. 1949, § 65-117; L. 1957, ch. 332, § 1; June 29.]

65-118. Reporting to local health authority as to communicable diseases. When no physician is in attendance, it shall be the duty of the head of the household or the individual in charge of any other place or premise where persons reside, when any member of the household or any one residing on the premises is suffering from a disease presumably communicable or suspected of being a communicable disease to report immediately to the local health authority all the facts relating to the case, together with the name and address of the person suspected of having said communicable disease. [G. S. 1949, § 65-118; L. 1953, ch. 283, § 1; July 1.]

2. REGULATIONS

a. Epidemic Diarrhea of Newborn.

"Any infant who passes three loose stools in one 24 hour period, or passes loose stools on two successive days shall be considered suspicious for diarrhea of the newborn and should be isolated in a suspect nursery unless it is entirely breast fed and shows no other evidence of ill health. If 3 such cases develop from any nursery within a period of two weeks, an epidemic of diarrhea of the newborn shall be considered to be present, and immediate notice shall be given by telephone either to the Division of Maternal and Child Health of the State Board of Health, or to the local Health Officer if the county maintains a full-time local health unit."

(This regulation was revoked through an oversight and will be reinstated by January, 1959.)

b. Ophthalmia Neonatorum.

According to the Preventable Diseases regulations, Ophthalmia Neonatorum is also a reportable disease.

c. The following regulations were approved at the Kansas State Board of Health meeting on April 18, 1958:

1. "Require the reporting of 'Acute, severe, staphylococcal infections occurring in household where one or more persons have been hospitalized in the six weeks period preceding the onset of the infection, or occurring in the maternity units of hospitals or maternity homes. When two or more cases of such infection develop within a period of 30 days among either recently delivered mothers or newborn babies in any hospital, a potential epidemic of staphyloccal disease shall be considered to exist and the hospital administrator shall report by telephone to the Kansas State Board of Health, or to the local health officer if the county maintains an organized local health unit, with a full-time director.' "

2. "The capacity of each hospital nursery shall be established by the State Board of Health on the basis of its rules and regulations, and this capacity shall be posted on the view window of the hospital nursery at eye-level in the form of a notice bearing the legend: 'Notice. Occupancy of this nursery by more than (capacity) infants is dangerous and contrary to regulations. By order of the Kansas State Board of Health.' "

Many patients with cancer could be "alive five years after diagnosis" if the disease were detected and treated earlier. Striking evidence pointing to this conclusion is presented in the publication *Patterns of Disease,* prepared by Parke, Davis and Company for the medical profession.

Uterine cancer which kills 16,000 women annually is almost 100 per cent curable if detected early enough, says *Patterns.* The survival rate for cancer of the breast, one of the commonest forms of cancer in women, could be raised from its present 46 per cent to 81 per cent, and of cancer of the lung, from 4 per cent to 34 per cent.

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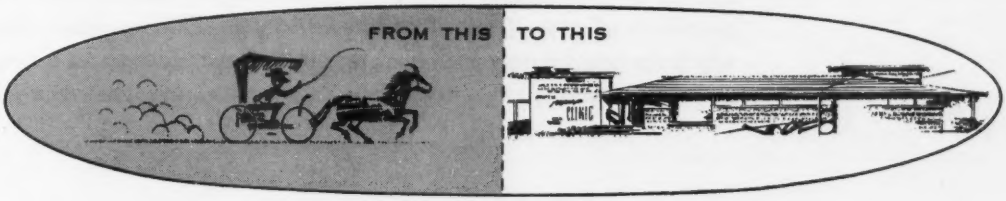

How to Replace an Out-dated Office

Are you handicapped in your practice by offices left over from the horse and buggy days of medicine? Many doctors are, you know — simply because their communities lack the modern medical housing they need.

If you are faced with this situation, you probably have started planning toward a new clinic or office unit. In doing so, however, you may encounter such problems as specific planning and financing of a medical practice building.

Problems such as these are a specialty of the Mortgage Loan Department of Farmers & Bankers Life. During the past twenty years, we have made a number of first mortgage loans to doctors throughout Kansas, for construction of their new office buildings. We shall be glad to consult with you.

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The Achievements of Aristo

...in Skin Diseases: In a study of 26 patients with severe dermatoses, ARISTOCORT was proved to have potent anti-inflammatory and antipruritic properties, even at a dosage only ⅔ that of prednisone[1]... Striking affinity for skin and tremendous potency in controlling skin disease, including 50 cases of psoriasis, of which over 60% were reported as *markedly improved*[2]...absence of serious side effects specifically noted.[1, 2, 3]

...in Rheumatoid Arthritis: Impressive therapeutic effect in most cases of a group of 89 patients[4]... 6 mg. of ARISTOCORT corresponded in effect to 10 mg. of prednisone daily (in addition, gastric ulcer which developed during prednisone therapy in 2 cases disappeared during ARISTOCORT therapy).[5]

1. Rein, C. R., Fleischmajer, R., and Rosenthal, A. L.: J. A. M. A. *165*:1821, (Dec 7) 1957.
2. Shelley, W. B., and Pillsbury, D. M.: Personal Communication.
3. Sherwood, A., and Cooke, R. A.: Personal Communication.
4. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957.
5. Hartung, E. F.: Personal Communication.
6. Schwartz, E.: Personal Communication.
7. Sherwood, A., and Cooke, R. A.: J. Allergy 28:97, 1957.
8. Hellman, L., Zumoff, B., Kretshmer, N., and Kramer, B.: Paper presented at Nephrosis Conference, Bethesda, Md., Oct. 26, 1957.
9. Ibid.: Personal Communication.
10. Barach, A. L.: Personal Communication.
11. Segal, M. S.: Personal Communication.
12. Cooke, R. A.: Personal Communication.
13. Dubois, E. L.: Personal Communication.

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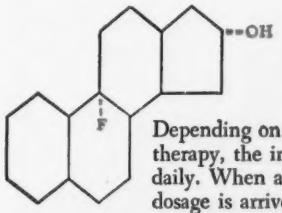
Triamcinolone LEDERLE

...in Respiratory Allergies: "Good to excellent" results in 29 of 30 patients with chronic intractable bronchial asthma at an average daily dosage of only 7 mg.[6]... Average dosage of 6 mg. daily to control asthma and 2 to 6 mg. to control allergic rhinitis in a group of 42 patients, with an actual reduction of blood pressure in 12 of these.[7]

...in Other Conditions: Two failures, 4 partial remissions and 8 cases with complete disappearance of abnormal chemical findings lead to characterization of ARISTOCORT as possibly the most desirable steroid to date in treatment of the nephrotic syndrome.[8,9]... Prompt decrease in the cyanosis and dyspnea of pulmonary emphysema and fibrosis, with marked improvement in patients refractory to prednisone.[10,11,12]... Favorable response reported for 25 of 28 cases of disseminated lupus erythematosus.[13]



Depending on the acuteness and severity of the disease under therapy, the initial dosage of ARISTOCORT is usually from 8 to 20 mg. daily. When acute manifestations have subsided, maintenance dosage is arrived at gradually, usually by reducing the total daily dosage 2 mg. every 3 days until the smallest dosage has been reached which will suppress symptoms.

Comparative studies of patients changed to ARISTOCORT from prednisone indicate a dosage of ARISTOCORT lower by about ⅓ in rheumatoid arthritis, by ⅓ in allergic rhinitis and bronchial asthma, and by ⅓ to ½ in inflammatory and allergic skin diseases. With ARISTOCORT, no precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

ARISTOCORT is available in 2 mg. scored tablets (pink), bottles of 30; and 4 mg. scored tablets (white), bottles of 30 and 100.

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PEDIATRIC PROBLEMS

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INFECTIONS AND INFECTIOUS DISEASES

Eastern Circuit—Feb. 3-6, 1959 — Western Circuit—Jan. 6-9, 1959

CARDIOVASCULAR DISEASE

Eastern Circuit—Mar. 3-6, 1959 — Western Circuit—Feb. 3-6, 1959

MEDICAL AND SURGICAL EMERGENCIES

Eastern Circuit—Mar. 31-Apr. 3, 1959 — Western Circuit—Apr. 28-May 1, 1959

MODERN MEDICINE

Eastern Circuit—Apr. 28-May 1, 1959 — Western Circuit—Dec. 2-5, 1958

CENTERS

Eastern Circuit

TUESDAY
Manhattan—Riley County Hospital
WEDNESDAY
Hutchinson—St. Elizabeth's Hospital
THURSDAY
Arkansas City—Arkansas City Memorial Hospital
FRIDAY
Emporia—Newman Memorial Hospital

Western Circuit

TUESDAY
Concordia—St. Joseph's Hospital
WEDNESDAY
Colby—Colby Country Club
THURSDAY
Garden City—Downing Restaurant
FRIDAY
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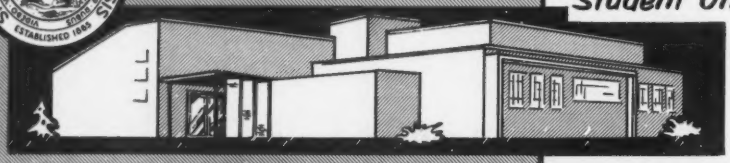

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Maternal Mortality Report

A 26-year-old white para II, gravida III first reported for care in the fourth month of her final pregnancy. The previous pregnancies had been normal except for thrombophlebitis following the second pregnancy. The patient did not receive a complete examination or blood count until the third prenatal visit but blood grouping, urinalysis, and serology were determined on the first visit. Her prenatal care was consistent. She gained 23 pounds during her pregnancy.

The patient fell approximately one week before term and had some vaginal bleeding following this episode. She was not hospitalized at this time. She continued to bleed intermittently, however, and nine days after the fall she was hospitalized for observation and discharged subsequently as "improved."

The patient went into labor spontaneously three days later, making rapid progress with spontaneous rupture of the membranes, and she was thought to be ready for delivery some three hours and fifteen minutes after the onset of labor. Attempts to deliver the baby occupied the next four hours. When the head failed to descend in spite of good contractions, the physician applied low forceps without success. He augmented his efforts with Pitocin by intravenous drip after two hours of effort and for two more hours continued the attempt to complete the delivery.

During this time there was slow, steady bleeding. At the end of this period of time, the physician felt he was dealing with a cephalopelvic disproportion due to a hydrocephalic baby, and the patient was showing signs of shock. The physician telephoned a prominent obstetrician in the east and was advised to perform a destructive procedure. This, however, was not carried out. During the ensuing hours, the patient continued to bleed and remained in shock. Blood was requested from another community 30 miles distant. The attending physician consulted a general surgeon by telephone and it was recommended that a section be performed. Further unsuccessful attempts to deliver the baby were made, and when the blood and the consultant arrived a total of ten hours had passed. A classical Cesarean section was carried out under nitrous oxide and ether, the procedure taking two hours. Despite the introduction of three pints of blood, the patient did not improve and her heart stopped during surgery. Cardiac massage was carried out without success.

Committee opinion: The committee felt that errors in judgment were displayed in this case: (1) It was not reasonable to exert effort to deliver the patient from below over such an extensive period of time in the face of a deteriorating condition and repeated failure; (2) Regular consultation with obstetricians more readily available would have been more rational; (3) The time required for the Cesarean section was longer than reasonable; (4) Better care could have been provided by transferral to better hospital facilities or earlier consultant assistance.

Classification: Obstetric death, preventable.

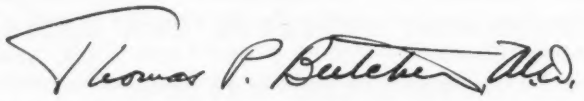
One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

PRESIDENT'S PAGE

DEAR DOCTOR:

Seldom has a letter been as heartwarming as is this. I wanted to share it with you.

Fraternally,



President

The University of Kansas
Lawrence

Office of the Chancellor — September 15, 1958

DEAR OLIVER:

When you were in my office a few days ago, discussing the rural health conference and the annual and centennial meeting of the Kansas Medical Society, I told you that I could not come to the annual meeting because of a conflict with the meeting of the National Association of State Universities, on whose Executive Committee I serve. It is still a fact that this conflict exists and it is also still a fact that I have a heavy obligation to be present.

The evening of the day of your visit was one of those rare ones when I could sit quietly in my home after dinner, listen to some chamber music, do a little reading, but mainly speculate. It suddenly flashed into my mind that in typical 20th century fashion all perspective had left me; I had gotten so preoccupied with the trees that I had forgotten the forest and the ground from which the trees had sprung. I spent many years of my life in becoming a physician and proudly consider myself that, even now, above everything else. I came back to Kansas, sensed a need, and hoped to do something about it. Everywhere I turned for assistance I found nothing but enlightened support and even dedication, and most of this I found within the Kansas Medical Society.

I suppose much of what little I have achieved since is directly related to those exciting and wonderful days between 1948 and 1951 where great ideas were discussed with wonderful and loyal people, and out of which period has come our rural health effort, much of the present vigor of our Medical School, and the great and significant advances in the care of the mentally ill in Kansas. And now many of these people propose to gather at a centennial celebration and I, who owe them so much, had planned not to be with them (albeit with good reason).

In short, I propose in early May to be here where I belong, namely at the centennial meeting of the Kansas Medical Society and I shall do what I can to make it a success. Of course, most of all, I shall enjoy visiting and reminiscing with all of you to whom I shall forever owe so much.

Sincerely,

/s/ FRANKLIN D. MURPHY, *Chancellor*

EDITORIAL COMMENT

Rueben Dalbec Joins A.M.A.

It is with sincere regret that the Council accepted the resignation of Rueben Dalbec, executive assistant of the Kansas Medical Society for the past six years. On November 15 he will leave to become field representative for the American Medical Association, a position of great importance and responsibility.

The Kansas Medical Society will miss Rueben's exceptional abilities and his friendly cooperation but welcomes the opportunity that is opened here for him to widen his sphere of influence.

Kansas feels it is a compliment that this position should go to a young man from this Society as we were complimented recently in the fact that Jim Reed, former editor of the *Topeka Daily Capital,* was selected to edit the excellent new A.M.A. newspaper.

Good luck, Rueben. We know your work will bring credit to the A.M.A. just as it has to the Kansas Medical Society during the past six years.

Sociology Textbooks

Dr. George S. Benson, president of Harding College, distributes a widely read letter on various phases of democracy. In a recent issue he recommends a book entitled *The Claims of Sociology: A Critique of Textbooks* by A. H. Hobbs, professor of sociology at the University of Pennsylvania.

In his book Dr. Hobbs evaluated 83 textbooks in sociology that are in wide use among the high schools and colleges of America. He finds a shocking situation to exist with reference to the ideology these texts express.

Dr. Benson says this book finds only 11 sociology textbooks that state spiritual guidance is a valid function of religion and 33 definitely advocate the opposite view. Fifty statements in 41 texts contain critical comments upon traditional religion. The great majority of these books teach the high school and college youth of America that

1. The outstanding characteristic of the American economic system is the maldistribution of wealth and that social planning by the government is the only way in which people can gain security.

2. Social controls in family, religious, and education fields are irrational and need to be revised.

3. Religion should discard mysticism, the supernatural, ritual, and tradition and concentrate upon social reform.

4. The government owes its subjects security, equality, health, and happiness and that increased governmental controls over business and industry are the only solution for current problems in these fields.

The editorial pages of this JOURNAL have long decried the apparent disinterest of physicians as parents in what their children are taught in the schools. Marked errors in the field of hygiene and physiology have previously been cited. Here is another example, quite certainly not as striking in Kansas as elsewhere, of textbook information that is frankly not only contrary to fact but also in opposition to the ideology and the beliefs upon which this nation was founded.

The Kansas Medical Society has a committee on School Health of which Dr. Conrad M. Barnes of Seneca is the chairman. Through its efforts a state school health council has been organized. While the committee is interested in all phases of school health, not the least among its interests is the question of what textbooks used in Kansas schools are teaching about health.

Kansas may well be proud of its record as contrasted with certain other areas in regard to the care that has been given the subject. But problems exist here also which the committee and Council propose to resolve. Their work should be encouraged by all physicians, but of even greater importance is the need for every parent to investigate this personally with respect to his child. Only then can America be sure its future citizens will understand what its founders believed to be worthy of their sacrifices. Only then can the future of democracy be assured.

American Board of Abdominal Surgery

Numerous Kansas physicians have been invited to become members of the founders' group of the newly announced "American Board of Abdominal Surgery." The number of inquiries concerning the status of this organization prompted the Kansas Medical Society to make certain investigations.

In a statement prepared by this new organization, the opinion is expressed that the general surgeon has suffered a loss each time a new surgical board is organized until now all that remains for his domain is the abdominal cavity. Hence a "board" to preempt that area of surgical management for the general surgeon.

Your Society has no desire to engage in that discussion because any viewpoint would quite obviously reflect the opinion of the author. Certain specialty societies came into being under circumstances not very dissimilar to the present situation and have, in the course of years, gained considerable professional acceptance. The principles and qualifications for membership are generally in line with those of established boards although examination is apparently not (always) required for membership. Since "Some applicants may be required to take a written and/or an

oral examination," it apparently is not even a "board" in the usual meaning.

Other specialty organizations do not agree that a board can today spring into immediate acceptance by merely declaring its existence. The Kansas Medical Society inquired of the American Board of Surgery, the American College of Surgeons, and of the Council on Medical Education and Hospitals of the American Medical Association concerning this question and received a similar reply from each office.

To become a recognized board listed in the *Directory of Medical Specialists,* the group must have passed a certain investigation. This process may somewhat retard the organization, but the 19 or some such number of boards currently listed in this directory have somehow satisfied whatever was necessary.

Replies to our inquiry were in accord. Each letter stated that the American Board of Abdominal Surgery had made no formal request for an investigation and had not applied for a listing in the directory even though it had been advised of the steps that would be necessary in this regard.

Therefore, this "board," for the present at least, is not recognized by the groups above named. Neither the American Board of Abdominal Surgery nor its members will be listed in the *Directory of Medical Specialists,* but what such membership may or may not accomplish for the individual physician now or in the future cannot be predicted.

Federal Spending

A few weeks ago the Washington office of the American Medical Association distributed its annual summary of the status of medical legislation as the 85th Congress adjourned. This year the report required 32 mimeographed pages to make the briefest possible report. A few thoughts come to mind, not original, but insistent enough to prompt them to be recorded.

First is the increasing interest of the Congress in legislation affecting health. In this recent summary are recorded 704 bills and resolutions on health or about one in 30 upon all subjects. Ten years ago it was barely one-fourth this number.

Second is the well known fact that certain major measures which did not pass will be reintroduced next year and that exceptional effort will be made to pass legislation which, in the minds of all thinking physicians, is frankly not in the best public interest.

Third is the fact that the debt limit was raised to 288 billion, the highest figure to date. Additional spending was reflected in many areas to a greater degree than was the 10 per cent increase of expenditures for defense.

Fourth, this was the most expensive non-war Congress in history, appropriating for one year almost double the amount spent ten years ago.

Fifth is the contemplation of increased social security benefits granted this year which will cost the employee who earns $4,800 or more and his employer an increase from $94.50 at present to $120 in 1959.

Sixth is a flight of fancy upon the ominous fact that the federal government is spending every hour of every day a sum of 13 billions of dollars. This is at a rate of $216,666 per minute and $3,612 a second.

Seventh comes the sobering reflection of where we are going and what can be done about it.

Course on Fluid and Electrolytes

A postgraduate course in fluid and electrolyte balance will be conducted in Wichita on February 7, 8, and 9, 1959, by Dr. Belding H. Scribner, associate professor of medicine at the University of Washington. Dr. Scribner, who has conducted numerous courses on this subject in this country and abroad, will be assisted by two associates from the University of Washington to insure that all phases of the problem will be covered.

This preliminary announcement is made so that physicians interested in attending will know the dates. Further details of arrangements and tuition will be announced later by the Education Committee of the Midwest Medical Research Foundation. All licensed physicians will be invited to enroll.

A.M.A. Clinical Session in Minneapolis

More than 3,000 physicians are expected to attend the American Medical Association's 12th clinical meeting, December 2-5, in Minneapolis. The scientific portion of the program will be presented in Minneapolis Auditorium. The House of Delegates will meet at the Leamington Hotel.

Approximately 200 physicians will participate in the scientific program, 35 medical motion pictures will be shown, and a trans-Atlantic conference between A.M.A. members in Minneapolis and British Medical Association members in Southampton, England, will be held. Closed circuit colored television will be shown, as in the past, through Smith, Kline and French Laboratories.

The general practitioner of the year will be named at the opening session of the House of Delegates on December 2.

Make hotel reservations now for the Kansas Medical Society's centennial session, Topeka, May 3-7, 1959.

THE MONTH IN WASHINGTON

Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.

For many years a number of students of government have been searching for some way of checking the growth of the federal bureaucracy and returning certain functions to the states.

Two particularly vexing problems are involved. Because the federal government has moved into so many taxation areas, states complain that even if they wanted to regain control over certain programs, they would have no way of paying for them. Also, a fool-proof mechanism would have to be devised to insure that the programs didn't break down during the transition and that the states would in fact keep up the activities after U. S. dollars stopped coming.

If the administrative details could be worked out, and if Congress would agree to reverse the trend, a number of U. S. Public Health Service grants programs presumably could be turned over to the states.

President Eisenhower is deeply interested in attempting to turn the tide, and last year the administration came up with a concrete proposal. It was to make the states completely responsible for the water pollution control operation ($50 million annually in U. S. grants) and vocational education ($35 million a year). So the state would have money to finance the work, the U. S. would drop part of its tax on telephone service, inviting the states to levy their own tax.

Congress was cool to the idea. Besides, after giving it more consideration, the then Secretary Folsom of HEW decided it wouldn't work because the low-income states couldn't realize enough from the telephone tax to meet the extra expenses.

But the administration hasn't given up hope. Supported by the federal-state joint action committee, Secretary Flemming (Folsom's successor) is proposing a new method, one that he thinks will meet the problem of the low income states.

He would shift to the states the same two programs—water pollution control and vocational education. At the same time the U. S. would forego 30 per cent of the present tax it imposes on telephone service and permit the states to levy this amount. In addition, to take care of the poor states the U. S. would allocate among states an amount equal to 10 per cent of the present telephone tax, distributing relatively larger shares to the low per capita income states.

In dollars, as explained by Secretary Flemming, the states would be losing $85 million in U. S. grants, but they would have an opportunity to collect a total of about $109 million on telephone service and receive $36 million in the new grant arrangement.

In announcing that the administration was going to try again to have this idea adopted, Mr. Flemming emphasized that both programs were of great value and shouldn't be allowed to "drop through the cracks in the floor" during the period of transition. He noted that under his proposal the U. S. could step in and make a state use the money for the specific purpose if it showed an inclination to collect the tax but spend the money somewhere else.

The question now is whether Congress will show any enthusiasm over the plan. At any rate, it will be opposed vigorously by the telephone industry and vocational education interests. The latter are fearful that their programs might suffer under all-state operation.

Notes

HEW is giving careful study to the Bayne-Jones report which proposed a doubling of U. S. medical research spending and early construction of 14 to 20 medical schools. Secretary Flemming told a press conference that final estimates of the cost of carrying out some of the report's proposals are due to be finished in December.

Social Security Administration reports a sharp rise in volume of appeals from applicants denied social security benefits, mostly under the disability section enacted two years ago. The administration's staff of referees has been increased four-fold in two years to handle the work load. Three times as many hearings are held on disability claims as on all others combined.

With President Eisenhower's appointment of General Elwood R. Quesada as administrator of the new Federal Aviation Agency, the American Medical Association is renewing its plea for an Office of Civil Aviation Medicine manned by a Civil Air Surgeon.

Mounting protests from medical and other groups have persuaded the Post Office Department to drop its plan to ban the airmail shipment of etiological disease agents. Airlines felt there was a threat of breakage and possible danger to crews and plane passengers. PHS, the A.M.A. and others argued that proper packaging could control this problem.

Tumor Conference

Carcinoma of the Tongue

EDITED BY BONITA J. PETERSON, M.D.

Dr. Robinson (Moderator): Malignant tumors of the tongue cause more deaths each year than any other cancer of the head and neck, including neoplasms of the thyroid gland. It has been estimated that cancer of the tongue now accounts for 2-3 per cent of all human cancers. Although carcinoma of the tongue is said to occur much more frequently in men, we have seen many cases in women. Since 1947, 37 of our 116 cases, or nearly 33 per cent, have been women. It is stated that a real change in sex incidence has occurred with a decrease of the ratio from 10:1 in 1925 to 2:1 in 1955. The change is principally due to a decrease in incidence in men, possibly secondary to decreased oral sepsis and syphilis.[2] In one series of 245 cases[3] more than half of the primary lesions on and about the tongue involved both the tongue and the floor of the mouth when first recognized.

Mr. Janzen (Junior Medical Student): This 83-year-old white woman had a hemiglossectomy here in September, 1957, for squamous cell carcinoma of the tongue. Four years previously she began having mild dysphagia and soreness of her tongue with an enlarging mass on the posterior third. A biopsy of the mass about two years later showed squamous cell carcinoma, and she was treated with radium needles for one week. The mass subsided but recurred, and she was then referred here for further therapy. After the hemiglossectomy there was no evidence of recurrence or metastasis until March, 1958, when a rapidly enlarging, 3 x 5 cm., oval, firm mass was noted in the region of the middle third of the sterno-mastoid muscle. The mass was fixed to the underlying soft tissues. A chest x-ray and other laboratory findings were within normal limits.

Dr. Santa Romana: We thought this case might be inoperable because of the fixation of the mass to the underlying soft tissues. Our neck dissection was indeed complicated by involvement of the adventitia of the common carotid artery. We nevertheless did the best extirpation we could, stripping out all the tissues from the clavicle to the border of the trapezius, including part of the thyroid gland, the deep cervical fascia, the internal jugular vein, the sterno-mastoid, omohyoid and digastric muscles, the submaxillary gland, and all soft tissues to the lower border of the mandible and base of the skull.

Dr. Boley: The mass of tumor we received included thyroid gland at one margin invaded by tumor, as seen in the photomicrograph (Figure 1). We may, therefore, reasonably assume that some tumor was left behind. The tumor consists of strands and nests of poorly differentiated squamous cells in a dense fibrous tissue stroma. It is probable that metastasis was primarily to lymph nodes with direct extension from them into muscle, thyroid, and perhaps other lymph nodes. The original tumor of the tongue was better differentiated in some areas but also showed foci of poor differentiation. Carcinomas of the tongue tend to be neither very benign nor highly malignant with the incidence of metastasis distinctly lower among the better differentiated tumors.[3] As might be expected, neoplasms of the posterior third of the tongue have a higher potential

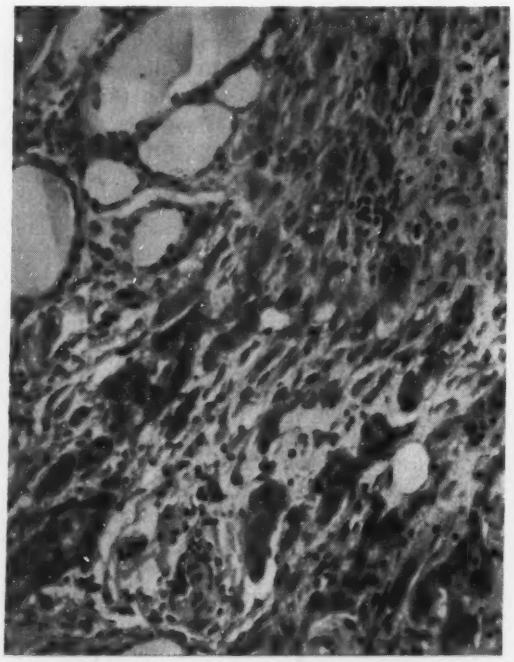


Figure 1. Invasion of the thyroid gland by squamous cell carcinoma metastatic from the tongue. (x230)

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service and from the Kansas Division of the American Cancer Society. Dr. Peterson is a Trainee of the National Cancer Institute.

for cervical lymph node metastases. In about 25 per cent of cases of carcinoma of the tongue, bilateral metastases are present.

Dr. Robinson: In this case we were confronted originally with a tumor which had already been unsuccessfully treated by radium implantation. We elected to do only a hemiglossectomy at first, since the patient's age and general condition did not seem to warrant a more extensive procedure without evidence of metastases to cervical nodes.

Elective neck dissection for carcinoma of the tongue is still a matter of controversy. Statistically it has been shown that metastatic nodes will develop in about 40 per cent of patients without adenopathy at the time of treatment of the primary lesion.[1] These nodes usually become evident within six months. This fact may be considered indication for elective neck dissection; however, local recurrence often makes the elective procedure useless. During follow-up visits to check the status of the treated primary lesion there is ample opportunity to detect any cervical lymph node enlargement and to proceed then with radical neck dissection.[4]

In the present case the primary lesion has thus far been controlled, but undoubtedly there is residual tumor in the neck, thus making postoperative radiotherapy desirable.

Dr. Tice: We cannot destroy metastatic carcinoma in cervical nodes from the tongue or lip, but we can irradiate to keep metastases in check. Radium needles placed into cervical nodes may control metastatic carcinoma, but neck dissection is a better procedure for proved metastatic tumor of this kind. In an older patient like this, our depression of the tumor cells by radiotherapy may allow her to outlive her carcinoma. We plan to give 3000 r, which should produce only a moderate skin reaction. A larger dose, such as 4000-5000 r, might produce ulceration of the skin in two or three months.

Student: Does the fact that this patient has received previous radium therapy influence your decision to give radiotherapy now?

Dr. Tice: When a patient has had previous radium therapy, anyone is hesitant to give further radiation to the same area, especially when the exact amount and placement of the needles are unknown. In this case, however, the previous therapy was directed toward the primary lesion and we will be treating the metastases in a different area.

Dr. Robinson: The metastases from carcinoma of the tongue are confined to regional cervical lymph nodes in almost 90 per cent of the cases. For this reason it might be hoped that involvement of regional lymph nodes would not prove so discouraging as it is with cancer elsewhere in the body. Unfortunately, here as elsewhere, the finding of metastases in the neck at the time of diagnosis alters the prognosis significantly. In addition, any malignancy near the midline has a poorer prognosis because of the increased possibility of metastasis to both sides.

It has been shown that in most cases, palliative treatment does not prolong survival time. On the other hand, in cancer of the tongue, the five-year "cure" rate is more meaningful than it is for many other maglignant neoplasms. The ultimate outcome of over 95 per cent of all carcinomas of the tongue is apparent within five years of the onset of the symptoms.[3]

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Annual Meeting of Cancer Society

Dr. Larry E. Vin Zant, Wichita, was elected president of the Kansas Division, American Cancer Society, at the organization's annual meeting in Wichita, October 3-5. Other officers are: Miss Georgiana Smurthwaite, Manhattan, vice-president; Mrs. William F. Hansen, Altoona, secretary; Mr. Arthur H. Saville, Topeka, treasurer, and Mr. T. M. Murrell, Topeka, chairman of Executive Committee.

The American Cancer Society, represented by Mr. Mefford R. Runyon, executive vice-president of the national office, presented to the Kansas Division a citation for the "excellence and completeness of its volunteer procedural manuals."

Virologists from eight foreign nations are spending nine weeks in this country this fall studying polio diagnostic techniques and vaccine production and control under the World Health Organization's fellowship program. Their itinerary includes work at Communicable Disease Center Laboratories in Montgomery and Atlanta, the Institute of Microbiology Polio Laboratory in Montreal, and the plants of three pharmaceutical companies producing vaccine in Detroit and Indianapolis.

The virologists, each outstanding in his own country, come from the U.S.S.R., Chile, Egypt, Nigeria, Poland, Lebanon, Austria, and French Equatorial Africa.

The Adenoviruses

A Review of the Literature and Assessment of Findings

SAM PETRIE, M.D., ***Kansas City, Missouri***

Introduction

The common cold, acute respiratory disease, exudative nonstreptococcal pharyngitis, and primary atypical pneumonia have been omnipresent sources of human distress for a long time. Until recently, etiology of these upper respiratory infections remained an unsolved problem. Then a group[21] at the National Microbiological Institute and a group at the Johns Hopkins School of Medicine began a collaborative investigation of the etiology of these conditions. They used tissue culture systems of recent surgically removed adenoidal and tonsillar tissue with the hope that they would serve as suitable media for the growth of any viruses that might be present in the respiratory tract. However, through repeated subculturing of these normal tissues, a tissue degenerating agent was found that could be serially transferred in tissue culture. Rowe et al.[32] in 1953 were the first to report this agent to which they gave the name "adenoid degenerating agent."

Huebner and associates[21] gave the name adenoidal-pharyngeal-conjunctival (APC) viruses to the agent they isolated. Then Hilleman and Werner[15] reported the recovery of a new agent from patients with acute respiratory illness at Fort Leonard Wood, Missouri, which was designated as RI-67.

These different names for apparently the same group of agents led to much confusion in terminology. For this reason a meeting of the leading investigators in this field was held in New York City in May 1956[11] for the purpose of establishing a standard nomenclature. The agreement reached was that they were to be called "adenoviruses," and the members of the group were to be designated by serotype numbers. Therefore, this terminology will be used here in referring to the viruses.

The purpose of this paper is to review the literature on this group of viruses with special emphasis on (1) the diseases they cause in man; (2) the treatment, if any, of the above illnesses, and (3) the epidemiology of these viruses.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Petrie is now serving his internship at St. Luke's Hospital, Kansas City, Missouri.

Properties of the Adenovirus

In the initial isolation of this group of viruses by Rowe et al.[32] in the winter and spring of 1952 and 1953, adenoids were obtained from operations on young children. Tissue culture, using the roller tube technique, of 33 of 53 (62 per cent) of the specimens observed during this period demonstrated destruction progressing to complete destruction of the epithelium in 7-10 days. The growth of the viruses has been found to be limited mainly to tissue cultures in which epithelial cells are present. Tissues that support growth of the adenoviruses are HeLa cells (a stock tissue culture obtained from carcinoma of the cervix), human embryonic tissues, monkey kidney tissues, and human amnion cells. The adenoviruses grow slowly in cultures of fibroblasts. The affected cells show eosinophilic swollen nuclei with questionable basophilic nuclear inclusions.

The size of the adenovirus, as determined by pseudo-velocity sedimentation of the type 4 virus, was established to be about 109 mu. Other estimations of the size of the virus by electron microscopy vary from 70 mu to 120 mu.

Activity of the adenoviruses is easily destroyed by heat (62 degrees for 30 minutes), but they can withstand repeated thawing and freezing without great loss of activity. No loss of activity was noted by Rowe et al.[32] after storage at 3 degrees Centigrade for a week or after three cycles of quick freezing or thawing.

Inoculation of the virus into embryonated eggs, suckling and adult mice, suckling hamsters, guinea pigs, rabbits, rhesus monkeys, and a chimpanzee have failed to produce any disease.

The viruses were found to be resistant to ether, a useful property, making it easier to isolate the virus when specimens were contaminated with fungi or bacteria. They can be filtered through a sintered glass Mandler No. 14 filter with only slight loss of activity.

Antibiotic and chemotherapeutic studies by Huebner et al.[21] showed the virus to be resistant to sulfonamide, penicillin, streptomycin, chlorotetracycline, and oxytetracycline.

Serological studies have demonstrated a soluble complement-fixing antigen common to all types of the adenoviruses which can be produced in tissue

culture fluids from all types of infected cells. For the determination of specific immunologic types, antisera prepared in human volunteers and rabbits have been found to neutralize homologous types but not others.

A colorimetric method of typing the adenoviruses has been described by Lennette et al.[26] which was compared with the neutralization test in monolayer HeLa cell cultures. Of 143 viruses tested by the colorimetric method and neutralization tests, final results were in complete agreement with one exception.

Tissue cultures with adenoviruses have been noted to turn more markedly acid than those of other cultures such as those with polioviruses. Fisher and Ginsberg[13] showed the lowered pH to be due to the accumulation of lactic, pyruvic, acetic, and alpha ketoglutaric acids.

Studies have also been carried out to determine the oncolytic effect of the adenovirus on human cancer. Southern et al.[35] studied the pathogenicity of the type 4 virus in a group of patients with advanced carcinoma. There was no convincing evidence of cancer regression and no evidence of selective localization of virus in cancer tissue.

All bacteriological and pleuropneumonia cultures have been negative on specimens of tissue cultures containing the adenoviruses.

Table I lists some properties of the adenoviruses as described by Huebner et al.[21]

TABLE I

1. Production of unique cytopathogenic changes in:
   a) human explant cultures (epitheliotrophic)
   b) HeLa cells with acid production
   c) monkey kidney
   d) rabbit trachea
2. Apathogenicity for laboratory animals
3. Ether resistant
4. Filtrable (sintered glass, Mandler)
5. Heat labile (56 degrees for 30 minutes)
6. Resistant to antibiotics
7. Type specific neutralization
8. Group specific complement-fixing antigens and antibodies (not type specific)
9. Soluble antigen

Types of Adenoviruses Isolated

Since the original isolation of the adenoviruses, many more types have been demonstrated. Huebner and Rowe[20] in April 1957 mention that there are at least 18 serologically distinct human serotypes with 17 having been given number designations. However, the last cumulative list is that by Solorzana[34] which was taken from an article by Rowe[30] which lists 14 types, 12 human and 2 simian (see Table II).

Diseases Produced by the Adenoviruses

1. *Acute Respiratory Disease*

During World War II the Commission on Acute Respiratory Diseases[9] drew attention to the entity of non-streptococcal pharyngitis or acute respiratory disease (ARD) while studying respiratory illnesses in recruits at Fort Bragg, North Carolina. The illness was characterized by an incubation period of five to six days followed by general malaise, headache, cough, chilliness, and a few nasal symptoms. About one-fifth of the cases showed patchy pulmonary involvement primarily in the lower lobes. Investigators of the commission, Dingle et al.[8] were later able to transmit this acute respiratory disease to volunteers by the inhalation of nebulized bacteria-free filtrates of pooled nasal and pharyngeal washings from infected donors. The agent causing this illness has been proved to be identical with the type 4 adenovirus.

In the winter of 1952 and 1953, Hilleman and Werner[15] observed an epidemic of acute respiratory disease among service personnel at Fort Leonard Wood, Missouri. A virus which they isolated from the throat washings of a patient with pulmonary involvement was called RI-67. Later serological studies of this virus proved it to be type 4 adenovirus. Studies in volunteers by transmission of the virus demonstrated that this disease differed both clinically and immunologically from the common cold and from primary atypical pneumonia when characterized by cold agglutinins. In these cases of primary atypical pneumonia they were able to demonstrate neither a rise in cold agglutinins nor agglutinins against streptococcus M.G. The incubation period and clinical findings in Hilleman's and Werner's cases were similar to those cases observed at Fort Bragg.

Type 4 adenovirus was also isolated from military recruits during an epidemic of acute respiratory infections at the Great Lakes Naval Training Center by Bell et al.[2]

It has been noted that the adenoviruses causing acute respiratory disease affect people in large groups, such as workers in factories and particularly military recruits. Berge[4] recovered types 3, 4, and 7 from military recruits suffering from respiratory illnesses ranging in severity from mild febrile rhinitis to primary atypical pneumonia at Fort Ord, California.

Adenovirus types 1, 2, and 5 are responsible for common febrile pharyngitis in the general population, and more than 50 per cent of infants between the ages of 6 and 11 months of age have been affected by either type 1 or 2 virus, according to Huebner and Rowe.[20]

TABLE II[34]
DIFFERENT TYPES OF ADENOVIRUSES

Type	*Strain Designation*	*Isolated from*	*Diagnosis*	*Isolated by*
1	A.D. 71	Adenoid	Hypertrophied adenoids and tonsils	NIH (Rowe et al.)
2	A.D. 6	Adenoid	Hypertrophied adenoids and tonsils	NIH (Rowe et al.)
3	G B	Nasal washing	Common cold volunteers	NIH (Rowe et al.)
4	RI-67	Throat washing	Primary atypical pneumonia	Hilleman and Werner
5	AD-75	Adenoid	Hypertrophied tonsils and adenoids	NIH
6	Ton. 99	Tonsils	Hypertrophied tonsils and adenoids	NIH
7	Gomen	Throat washing	Pharyngitis	Berge, Lennette
8	Trim	Eye swab	Epidemic keratoconjunctivitis	Jawetz et al.
9	Hicks	Stools	Arthritis rheumatoid myelitis	Kibrick, Enders
10	J.J.	Eye swab	Conjunctivitis	NIH
11	Slobitski	Stool	Paralytic polio type I polio also isolated	Kibrick, Enders
12	D.C.	Anal swab	Niemann-Pick disease	NIH
13	S.V. 1	Cynomolgus kidney	Monkey kidney tissue culture	Hull
14	Bertha	Stool	Chimpanzee with mild URD	Sabin and NIH

The clinical features in Table III were observed by Hilleman and Werner[16] in 33 patients with adenovirus type 4 infection.

As can be seen from the listed symptoms, the clinical condition of acute respiratory disease is ill-defined. It has been stated that an accurate diagnosis cannot be established without the aid of a virology laboratory. However, an outbreak of a respiratory infection with the above symptoms which is unresponsive to chemotherapy should suggest the diagnosis of adenovirus type 4 infection. In summary, adenovirus type 4 is the cause of acute respiratory disease which is probably the same as non-streptococcal pharyngitis.

2. *Pharyngo-Conjunctival Fever*

Probably more has been written about the clinical features of adenovirus type 3 infection than about any of the other adenovirus infections. This entity is known as adenopharyngeal-conjunctival or pharyngo-conjunctival fever.

Derrick in 1943[10] was the first to report on this clinical entity. He reported three cases of conjunc-

TABLE III

Complaints		*Percentage*
Sore throat		90.9
Malaise		84.9
Fever (2-8 days)		78.8
Chills		75.8
Coryza	42	72.7
Nasal congestion	56	
Dysphagia		75.8
Cough		66.7
Headache		66.3
Myalgia		33.3
Backache		27.3
Nausea and vomiting		27.3
Eyeache		18.2
Chest pains		12.1

TABLE IV Bell et al.[3]

Symptoms	*Percentage*
Fever	90
Sore throat	70
Redeye	60
Headache	68
Malaise, weakness	72
Signs	
Fever 102-104° for 4-5 days	90
Pharyngitis	75
Cervical adenopathy	75
Posterior cervical adenopathy	66
Rhinitis	50
Conjunctivitis	75
a) unilateral	25
b) bilateral	50

tivitis with a common source of contact in a swimming pool. These were characterized by conjunctivitis, unilateral in onset, pharyngitis, nasal clogging, headache, spiking fever of five to seven days' duration and clearing by lysis.

Cockburn[6] in 1953 studied an epidemic of a disease in Greeley, Colorado, which was called Greeley fever. The clinical features were conjunctivitis (unilateral or bilateral) followed in some cases by the development of corneal opacities, pharyngitis, myalgia, and pyrexia. These features varied in intensity, and not all were present in each case. Later in the same year similar infections were reported from Kansas, Nebraska, Missouri, South Dakota, Oklahoma, and other portions of Colorado.

Studies by Bell et al.[3] of a similar disease entity, which they found to be caused by adenovirus type 3, suggested that the Greeley outbreak might have been due to the same or a related virus. Cockburn's[7] report on serologic data from paired, frozen, acute, and convalescent sera from 11 representative cases from the Greeley outbreak was consistent with this hypothesis. Ten of 11 sera had a rise in complement-fixing antibody, and eight of nine had a rise in neutralizing antibody to type 3 adenovirus. The clinical findings were conjunctivitis in ten of ten cases, nonvesicular pharyngitis in eight of ten cases, temperature of 101.0 degrees or greater in seven of nine cases, corneal opacities in three of eight, preauricular adenopathy in two of nine, cervical lymphadenopathy in ten of ten, and headache in seven of nine cases.

Bell et al.[3] during the summer of 1954 studied an outbreak of 300 cases of pharyngo-conjunctival fever in a children's day camp in Virginia and in neighboring communities. Adenovirus type 3 was isolated from 80 of these patients, and specific antibody response was found in practically every patient.

The symptoms and signs of the above outbreak are summarized in Table IV.

Not uncommonly the fever spiked to 103 or 104 degrees F. for one to ten days with a median of five to six days, subsided by lysis, and was often the chief complaint. The sore throat was often mild and was described as more a discomfort or scratching than painful swallowing. The posterior pharynx was frequently injected and prominently studded with glary lymph follicles. Non-tender cervical lymphadenopathy was common even in the absence of a sore throat. Conjunctivitis of mild follicular type was present for a few days to less than three weeks and was manifest by both bulbar and palpebral conjunctivitis. A serous exudate with some matting together of the eyelids and excessive lacrimation was not uncommon, but a purulent exudate was almost non-existent. Photophobia and retro-orbital pain were uncommon, but eye redness and minor discomfort were occasionally the chief complaint.

No deaths occurred and no sequelae were recognized. Otitis media, non-purulent, occurred frequently as a part of a complication of the disease which did not respond well to antibiotics. Headache was a common symptom with drowsiness and listlessness near the end of the febrile illness. Occasionally muscle, joint and bone aches were observed, particularly in adults. The incubation period was from five to nine days with a period of communicability in the first ten days of the illness. Droplets, direct or indirect by freshly contaminated objects, appeared to be the method of spread of this illness, and there was a questionable increase in the incidence of conjunctivitis in relation to swimming. The resistance of the adenoviruses to chlorine is unknown.

Sobel et al.[33] reported an epidemic of pharyngo-conjunctival fever in a large New England boys' camp in July and August of 1955. Additional features of this epidemic were generalized lymphadenopathy in 15 per cent, hepatomegaly in 18 per cent, splenomegaly 12 per cent, meningisms 10 per cent, and a primary wave of mild pharyngitis.

3. *Epidemic Keratoconjunctivitis and Other Ocular Manifestations*

Epidemic keratoconjunctivitis has long been a recognized clinical entity and is widespread with a greater incidence in the orient. A review of the literature indicates that Beal was perhaps the first to describe this disease.

The disease was first recognized in the United States in 1941 in the shipbuilding areas along the west coast and was referred to as shipyard conjunctivitis by Hogan and Crawford.[18] The conjunctivitis spread to the United States from the Far East via Hawaii and subsequently caused explosive epidemics in industrial plants, hospitals, medical dispensaries, and offices throughout the United States, according to Thygesan et al.[37]

The first evidence suggesting that adenoviruses might be the cause of conjunctival disease was accidental infection with type 3 virus in laboratory and clinical investigators at the National Institute of Health. Huebner and Rowe[20] observed this development of unilateral catarrhal and follicular conjunctivitis during the autumn of 1953. This alerted workers, and several outbreaks of conjunctivitis were observed in the succeeding months.

Jawetz et al.[22,24] first isolated two adenoviruses from clinical cases of epidemic keratoconjunctivitis in 1955. One virus, isolated from a man from the orient and called "Trim" virus, was later proved to be adenovirus type 8. The second virus was type 3.

Ormsby et al.[29] reported an epidemic of keratoconjunctivitis at the Ford motor plant in Windsor, Ontario, in 1951. Clinically these cases were characterized by follicular hypertrophy in the lower conjunctival fornix associated with pseudomembranes, marked tearing, and preauricular adenopathy. Eighty-nine of 549 cases developed corneal subepithelial opacities which were demonstrated by focal illumination with a binocular loupe. One year later 29 of 61 patients continued to have corneal opacities with resultant visual disturbances.

Clinically epidemic keratoconjunctivitis as reported by Jawetz et al. [23] occurs after an incubation period of seven to ten days with the development of an intense follicular conjunctivitis, sometimes a pseudo-membrane formation, accompanied by enlarged tender preauricular lymph nodes. Then, in most cases, five to ten days later corneal lesions develop. These lesions are characteristically small, round, subepithelial, corneal opacities without superficial ulceration or imposed sensitivity of the cornea. Serious visual interference may be caused by these opacities. There is an increased incidence of conjunctivitis in the summer months which may be related to swimming pool transmission, as was noted in the Greeley epidemic of 1951 by Cockburn et al.[7]

Adenoviruses types 3, 7, and 8 are well established as etiologic agents of ocular disease. Types 3 and 7 cause acute follicular conjunctivitis with systemic symptoms and infrequently with corneal opacities. Type 8 causes epidemic keratoconjunctivitis with frequent opacities, rarely accompanied by systemic manifestations. Later data reviewed by Solorzano[34] showed that 93 per cent of patients with epidemic keratoconjunctivitis developed antibodies against adenovirus type 8.

4. *Primary Atypical Pneumonia*

Hilleman and Werner[15] reported cases of pulmonary involvement with acute respiratory disease. From the throat washings of one of these patients with a clinical and x-ray diagnosis of primary atypical pneumonia, an adenovirus type 4 was isolated from throat washings. They subsequently noted that those cases of primary atypical pneumonia with evidence of infection by adenovirus type 4 failed to develop cold agglutinins or agglutinins against the streptococcus M.G. It was then concluded by Hilleman and Werner that the adenovirus type 4 probably could be responsible for a large portion of cold agglutinin and streptococcus M.G. negative primary atypical pneumonias.

Sterner[36] reported a case of typical pneumonia in an eight-month-old girl. Adenovirus type 7 was isolated from the nasopharynx and feces on the seventh day of the illness. There was a convalescent fourfold increase in antibody titer from negative on the seventh day of illness. Berge et al.[4] isolated adenoviruses types 3, 4, and 7 from military recruits suffering from respiratory illnesses ranging from mild febrile rhinitis to primary atypical pneumonia at Fort Ord, California.

5. *Non-Tuberculous Juvenile Bronchiectasis*

Non-tuberculous bronchiectasis in children is ill-defined and is often attributed to some episode of pyogenic bronchitis. Macfarlane and Summerville[27] have suggested that many cases are due to a chronic infection of the bronchi by the adenoviruses and that the persistence of the virus may cause some of the characteristics of the lesion. Their hypothesis arose from the observation of a similar respiratory disease in cattle called "cuffing pneumonia" which was of suggested viral etiology. In cattle the disease began in the calf with mild peribronchial lymphocytic infiltration, passed through a chronic stage with predominant lymphoid hyperplasia, and ultimately developed into bronchiectasis with fibrosis.

With this in mind they studied lobectomy specimens from patients with bronchiectasis, and the predominant feature present in about 75 per cent of the cases was lymphoid hyperplasia affecting the hilar nodes and irregularly narrowing the lumen of the bronchial ramifications in the affected segments of the lungs. A comparison with "normal" lungs showed an absence of this lymphoid hyperplasia. Their finding led to the search for evidence of a virus in these

patients. In 11 of 18 patients investigated a significant rise in antibody titer was found, and an adenovirus was isolated from one case. However, on the basis of other studies one could expect to find similar serologic evidence of the adenoviruses in the normal population.

6. *Diseases of Lymphoid Tissue*

The adenoviruses were originally isolated from hypertrophied tonsils and adenoids. Rowe and Huebner[31] isolated adenoviruses from 27 of 30 (90 per cent) suspensions of adenoids and tonsils cultured. In pharyngo-conjunctival fever follicular enlargement of the submucous lymphoid tissue of the pharynx and conjunctivae with enlargement of the regional lymph nodes is noted. In addition the adenoviruses have been isolated from other diseases envolving lymphoid tissue. Rowe in 1955 demonstrated type 3 virus in the mesenteric lymph nodes and lungs of an infant dying of Letterer-Sieve disease; subsequently another "D C strain," according to Rowe and Huebner,[31] has been isolated from the stool of an undiagnosed reticuloendothelial system disease resembling Nieman-Pick disease. Kjellen[25] isolated adenovirus types 2, 3, and 5 from stools of 6 of 82 patients with mesenteric lymphadenitis, and in three cases the virus also was isolated from mesenteric lymph nodes.

7. *Other Diseases*

Neva and Ender[28] have reported the isolation of adenovirus type 3 from an infant with a disease resembling roseola infantum. The isolation of an adenovirus in the case of Letterer-Sieve and Nieman-Pick disease was most likely a coincidental finding.

Epidemiology

Present evidence indicates that the adenoviruses are widespread throughout the world. Supposedly epidemic keratoconjunctivitis was carried to the United States from the orient via Hawaii. Van Der Veen et al.[38] reported on the occurrence of acute respiratory disease caused by an adenovirus in military recruits in the Netherlands. Kjellan[25] has cultivated adenoviruses from patients in Sweden. Balducci et al.[1] reported isolation of adenoviruses from adenoids of patients with acute respiratory disease at Sheffield, England. Ormsby et al.[29] have reported epidemic keratoconjunctivitis in Canada. The above and the widespread outbreaks of adenovirus infections in the United States, especially in military recruits, points out the world-wide distribution of the adenoviruses.

Age and sex incidence. The adenoviruses are widespread and produce infection in all age groups. Newborns have complement-fixing and neutralizing antibodies comparable to those of the mothers. At six weeks the complement-fixing antibodies are gone, but neutralizing antibodies are still detectable. At one year of age neutralizing antibodies are present only if complement-fixing antibodies have reappeared. Over 50 per cent of children tested between 6 and 12 months of age had neutralizing antibodies to at least one adenovirus, usually type 1 or 2. The 5- to 9-year age group is affected most often in epidemics of pharyngo-conjunctival fever. The incidence of antibodies increases with age. Of 50 people between 31 and 77 years of age tested by Rowe et al.,[31] all had antibodies to at least one type and 72 per cent had antibodies to four or more of six types tested. Sex differences in attack rates are not observed in children; however, in adults women are affected twice as often as men. This is supposed to be due to the fact that women are more frequently exposed while caring for the sick at home.

Immunologically there is a gradual increase in the per cent of sera containing complement-fixing antibodies. At six months of age 20 per cent have complement-fixing antibodies. A peak of about 74 per cent is reached in the 18- to 25-year age group (previous military training may alter this percentage), and then there is a decline to about 23 per cent in the 61- to 70-year age group.

The incubation period is normally five to six days but may range from one to ten days.

There is a seasonal incidence with increased frequency in winter months, but the disease is seen in some areas during the summer, as was the case in the epidemics at Greeley, Colorado,[6] and Virginia[3] where swimming pools were believed to be a factor in the spread of the adenovirus. Adenovirus infections may be epidemic or sporadic in form.

The infectiousness of the adenoviruses is high during epidemics with attack rates between 60 to 70 per cent in the exposed population. The period of infectivity lasts about ten days.

The spread of the virus is probably by person to person direct contact or by the airborne route. Fomites may serve as vehicles for spread of the virus and, as mentioned, swimming pools are suspected sources of infection especially in pharyngo-conjunctival fever.

No animal reservoir of the adenovirus has been demonstrated other than man. The problem of whether humans might be carriers of the adenoviruses has not been solved.

Preventive and Therapeutic Measures Available

The acute respiratory diseases are probably responsible for more absenteeism from school, industry, and military duty than from any other illness. In a study at the University of Wisconsin by Evans,[12] respiratory illnesses were responsible for 33 per cent of the infirmary admissions per year, the single most important cause of admissions. That respiratory illnesses are a major problem to the armed forces is pointed out by the fact that in certain recruit training camps the adenoviruses have been responsible for

up to 90 per cent of hospital admissions for respiratory disease during the winter months and for up to 60 per cent of all hospital admissions for these illnesses during the entire year, according to Hilleman et al.[14] Since respiratory illnesses were causing such a tremendous time and economic burden on troop training centers, investigative work was started in order to develop an effective vaccine against the adenovirus.

Huebner et al.[19] were the first to describe the use of heat-inactivated and formalin-inactivated vaccines of adenovirus type 3 prepared from monkey tissue cultures. They studied the effectiveness of the vaccine in (a) producing specific neutralizing antibodies in the serum and (b) the prevention or modification of artifically induced infection and disease. These studies were performed on 83 male inmates of an institution. An antibody response similar to that of naturally acquired antibody levels was obtained with the vaccine. The vaccine was effective in reducing infection from 90 per cent in unprotected to 27 per cent in vaccine-protected subjects.

Hilleman et al.[14] reported the use of a vaccine containing types 4 and 7 adenovirus in 311 recruits which was effective in reducing the incidence of hospitalizations for acute respiratory illness from 23.8 per cent in the unvaccinated group to 4.8 per cent in the vaccinated group.

Bell et al.[2] reported on the use of a trivalent adenovirus vaccine (types 3, 4, and 7) in naval recruits at the Great Lakes Naval Training Center. They reported a 50-70 per cent decrease in the number of febrile respiratory illnesses in the vaccinated group when compared to a similar unvaccinated group.

The above information indicates the usefulness of a vaccine in reducing incidence of acute respiratory illness in military populations. However, Evans[12] at the University of Wisconsin found that only 2.0 per cent of their hospitalized cases of respiratory illnesses were due to an adenovirus and concluded from this evidence that immunization against the adenovirus was not indicated.

The treatment for active adenovirus infection was not elaborated on in the literature. However, Cecil and Loeb[5] advocate the same general principles of therapy as for the "common cold." Bed rest should be enforced in those with a temperature over 100.0 degrees or those with some complicating chronic disease. Acetylsalicylic acid is given for "symptomatic" relief; for a troublesome cough, a cough mixture containing codeine may be given. Ephedrine ¼ to 1 per cent may be given for nasal congestion, and the antihistamines are widely used and have some beneficial effect on catarrhal symptoms. Antibiotics should be reserved for those cases in which there is a strong likelihood of developing a complication such as bronchopulmonary infection, sinusitis, or otitis media.

In epidemic keratoconjunctivitis special care should be taken in the doctor's office to prevent spread of infection by contaminated instruments. Hogan[17] states that attempts to control the disease with various therapeutic agents have been unsuccessful. Antibiotics have been useful in treatment of secondary invaders.

Thus in infections caused by the adenoviruses, as is true in many diseases of viral etiology, there are no specific therapeutic measures but only "symptomatic treatment."

Summary

A review of the literature on the recently isolated group of adenoviruses has been made. To date 18 serological types of human adenoviruses have been isolated. They share a common complement-fixing antigen but produce a type specific neutralizing antibody.

The adenoviruses are responsible for those respiratory illnesses described as acute respiratory disease, pharyngo-conjunctival fever, and probably those cases of primary atypical pneumonia not characterized by cold agglutinins or agglutinins against streptococcus M.G. Other diseases such as mesenteric lymphadenitis, roseola infantum, and non-tuberculous juvenile bronchiectasis have not been proved to be of adenovirus etiology. Isolation of an adenovirus in cases of Letterer-Sieve and Nieman-Pick diseases was probably coincidental.

The adenoviruses are widespread throughout the world and may be either sporadic or epidemic in nature but are prone to cause disease in large groups such as military recruits and factory workers.

Vaccines have proved effective in lowering the incidence of adenovirus infection in military populations, but their usefulness in the civilian population has not been proved. The systemic effects of adenovirus infections are treated "symptomatically."

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50th Year of Tuberculosis Work

The 50th anniversary meeting of the Kansas Tuberculosis and Health Association and the Kansas Trudeau Society was held in Topeka, October 1 and 2.

New officers for the Trudeau society were elected as follows: president, Dr. John K. Fulton, Wichita; president-elect, Dr. James C. Dowell, Lawrence; secretary-treasurer, Dr. Francis N. Lohrenz, Newton; members of executive group, Dr. Robert G. Loudon, Chanute, and Dr. William W. Abrams, Kansas City.

Re-elected to the board of directors of the tuberculosis association were: Dr. Dowell, Dr. Fulton, Dr. B. W. Lafene of Manhattan, Dr. H. R. Wagenblast of Salina, and Dr. G. M. Martin, Topeka. Elected to the board for the first time are Dr. Roy A. Lawson, Jr., Chanute, and Dr. Calvin A. Pyle, Leavenworth.

A resolution was approved commending Dr. C. F. Taylor, Norton, for "outstanding service" in the fight against tuberculosis, and he was presented a bronze medallion. Another resolution continued the group's endorsement of the Stocklen report.

Kansas participants in the scientific program were: Dr. Ralph I. Canuteson, Lawrence; Dr. Lawson, Dr. Pyle, Dr. Martin, Dr. Charles Pokorny of Halstead, and Dr. Martin J. FitzPatrick, Kansas City.

Last year 83 Kansans died because of accidental burns, and 67 received the burns in their homes. The very young are the chief victims, according to the Kansas State Board of Health.

Economics in Medicine

Outline of Procedures to Prevent Collection Problems

FLOYD F. WEHRENBERG, ***Kansas City, Missouri***

You have undoubtedly heard many times that the best way to lose a patient is to let his account become delinquent. For this reason it is important not only to your financial program but to your practice to be certain your collections are good.

Many doctors don't really know whether or not they have collection problems. Many who have simply assume that all doctors have the same trouble. Here are two guides to help you decide (based, of course, on the assumption that yours is an established practice):

1. Your collection percentage should consistently be 95 per cent or over. (Divide your total charges into your total cash receipts for a month or a year to determine your collection percentage.)

2. You should not have more than four months' average charges on your books. (Total your accounts receivable. If the average charges total $3,000 per month, your accounts should not appreciably exceed $12,000.)

Preventives

If you have a collection problem you will want to do two things, (1) prevent further delinquencies and (2) collect as many delinquent accounts as possible. The following four rules, if carefully adhered to, will serve to prevent many delinquencies:

1. Inform the patient of every charge.
2. Send monthly statements to all patients.
3. Have an understanding about payment of accounts with all patients who do not have an "A" credit rating.
4. See that patients carry out their arrangements to pay by establishing proper follow-up procedures.

On minor charges the patient can be informed of your fee by means of the charge slip. A recent survey proved that doctors properly using the charge slip average five per cent higher collections than those who do not.

When a major fee is to be incurred, it is up to you to explain that fee to the patient in advance. Conclude your explanation with this remark: "Any financial arrangements you wish to make with my secretary will be perfectly all right with me." Then don't discuss finances with the patient!

Assuming you have the capable assistant you should have, that's her job, and she can do a better job at it than you because she is informed of the patients' credit ratings. Nothing is more embarrassing to a medical assistant who is trying to be effective in promoting good collections, or more damaging to your collections, than to have the patient say, "The doctor told me I could pay any time I was able."

Your job is to explain the fee (unless you have also delegated this responsibility to your assistant) and refer the patient to her to make arrangements for payment. She will work out a plan that is most convenient for the patient and still will assure your being paid in a reasonable time.

Follow-up Procedures

Statements should be sent monthly to all patients with open accounts except those requiring letters. If an account has gone for 90 days without service or payment, the patient should receive a letter. That letter may be brief but should be courteous and give the patient an opportunity to "save face" by offering him an excuse. Did he forget? Did he not receive the statements? Is there another reason?

If no reply is received, your secretary should follow this letter with another in 30 days. This is continued for three or four months. Each letter will be a little more firm in requesting payment, but never impolite or sarcastic. Your final letter will state that the account will have to be given to a collector unless payment is received in ten days.

Then, if payment is not received in ten days, the account must be given to a collector promptly or your entire education philosophy and techniques will be rendered ineffective. There is nothing more you can do. Why have your assistant spend valuable time (which costs you more in the long run than the collector's fee in most cases) trying to enforce payment when the patient now knows you don't mean what you say. Be sure you select an ethical collection agency and you'll have nothing to worry about in public relations. In fact your public relations will benefit from your fairness in the eyes of those patients who sacrifice to pay their accounts and resent others being able to avoid paying theirs.

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Mid-West, 4010 Washington Street, Kansas City, Missouri.

This same follow-up rule applies to patients whose promises have been made and not kept. The patient should promptly be reminded of his promise and his failure to keep it. If he consistently breaks promises, don't waste your time with him. Notify him that his account is to be given to a collector unless payment is made, and then do so if he fails again.

Suppose a patient makes one payment and then stops? Send another letter thanking him but reminding him that payments must be regular.

As long as patients know you expect them to keep their promises and that you will treat them all fairly, most will make the necessary effort to keep their accounts current. But you must set the example. If you are faithful to your procedures, they will be faithful in their payments.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

PAT ON BACK

Speaking of doing things for others, Allen County physicians deserve a mighty nice pat on the back for the mass immunization program they are now carrying on for the benefit of the county's school children.

They aren't getting paid a cent. In fact, it is costing them a little money out of their own pockets. They don't have to do it. Indeed, they had to go out of their way to make an opportunity to perform this service for the community.

The vaccines are available without cost from the Kansas State Board of Health. But a community must ask for them and it must provide a method of giving the shots without cost to the children or their parents.

Allen County was one of the leaders in the state in setting up a county-wide immunization program when the Salk vaccine was first available. And it has followed through every year since, whereas many other counties have fallen by the wayside.

For a couple of years, the physicians who administered the shots were paid some 25c a shot by the county. They didn't keep the money, personally; they turned it over to the treasury of the county medical society.

But for the past two years they have received nothing. Not only that, they have furnished their own equipment and have used up around $5 worth of needles and other materials apiece while doing this work.

It doesn't, of course, add up to a "sacrifice" of major proportions. But it certainly does add up to a mighty fine voluntary public service, whose value to the community in health protection can't even be measured in terms of money.

One of the tragedies in this country today is the thousands upon thousands of children who are NOT getting the protection against polio, diphtheria, whooping cough, and tetanus that is now universally available—just through carelessness, neglect, or plain inertia.

But it's not happening in Allen County. And the county health officer and the county physicians deserve all the credit.—*Iola Register, October 15, 1958.*

A.M.A. Office Remodeling

The American Medical Association, largest medical organization in the world with 171,000 physician members, has contracted for a $2,000,000 modernization program of its headquarters building at 535 North Dearborn Street, Chicago.

The building, on the northeast corner of Dearborn Street and Grand Avenue, is the hub of the A.M.A.'s professional and public services and houses a staff of 650.

The contract for the work has been signed with Great Western Contracting Company, Chicago, and the job of remodeling the nine-story gray granite building will get underway immediately.

The contract calls for installation of new lobbies, entrances, air conditioning and automatic elevators, and for complete modernization of all corridors and offices, with dropped acoustic ceilings, fluorescent lighting, new flooring, new walnut paneling, and glass partitions.

The job will require 24 months and will provide adequate meeting space and restaurant facilities for employees and visiting physician members.

The A.M.A. has occupied its present site, with many expansions, since March 1902, when it purchased its first piece of land, 100 feet on Dearborn Street and 80 feet on Grand Avenue, then known as Indiana Street, for $42,000.

On this plot were five rather old two-story and basement buildings. They were torn down and a new three-story brick and stone building was erected at a cost of $35,000. More adjacent ground was purchased in June 1903 and shortly after that additions to the building were made.

The present structure, including a small auditorium, was completed in 1937, with a six-floor addition in 1947.

PHYSICIANS' ACTIVITIES

Dr. J. S. Reifsneider, Wichita, was in Brussels, Belgium, in September to attend the International Congress of Ophthalmology.

"Problems of the Aging" was the subject covered by **Dr. Ralph E. White,** Garnett, in an article written for the *Anderson Countian* last month. It was one of a series designed to show residents of the area the necessity for providing a home for the aged.

A feature story in the *Topeka Daily Capital* in September paid tribute to **Dr. Irene A. Koeneke,** Halstead, and described her practice, travels, and interests.

Plans to close his private office have been announced by **Dr. Walter Stephenson,** Norton, who reports he will remain on the staff of the Norton Sanatorium.

Dr. Ellis Duncan, who has been practicing in Burlington, has announced plans to move to Oskaloosa, Iowa, where he will join a clinic group and specialize in surgery.

Dr. Raymond G. House, Wichita, attended a postgraduate course at Harvard Medical School last month.

"Recent Developments in Medicine" was the subject chosen by **Dr. Jack Catlett,** Emporia, for a talk at a recent meeting of the Emporia Kiwanis Club.

Dr. R. R. Snook, McLouth, one of the first physicians to be located in a small town under the "Kansas Plan," was guest of honor at a surprise party in McLouth on October 5, the occasion marking his tenth anniversary of beginning practice there.

The Public Health Service recently assigned **Dr. Harry Allen** to the Kansas State Board of Health to work on chronic diseases. He holds a master of public health degree from Harvard and has been with the Public Health Service two years.

Dr. Josaphyne Davis, health officer in Franklin County, has resigned that position because of poor health.

A husband and wife team, **Dr. Adrian Duffy** and **Dr. Eileen Duffy,** recently joined the medical staff of the Osawatomie State Hospital. Both were educated in Ireland and came to this country to serve their internships at Mount St. Mary's Hospital, Niagara Falls, New York.

Dr. Harry Ricketts, a graduate of Tulane University who has completed a surgical residency at St. Luke's Hospital, Kansas City, Missouri, has moved to Ottawa to practice in association with **Dr. John F. Barr** and **Dr. Robert A. Gollier.**

A talk on the adrenal glands was presented by **Dr. Fred Doornbos,** El Dorado, at a recent meeting of the Graduate Nurses Club of that city.

Dr. Charles Rombold, Wichita, presented a paper, "Trochanteric Bursitis, Snapping Hips, Sprains of Hip," at a meeting of the American College of Surgeons in Chicago last month.

Among speakers at the annual meeting of the Kansas Division of the American Cancer Society, held in Wichita last month, were **Dr. Robert E. Stowell,** of the University of Kansas Medical Center; **Dr. D. Cramer Reed** and **Dr. Wilbur G. Cauble,** Wichita, and **Dr. George A. Westfall,** Halstead.

Dr. Mildred Passmore, who recently completed work in pediatric hematology at Charity Hospital, New Orleans, has announced plans to practice at the Snyder Clinic, Winfield.

Dr. Donald E. Wilcox, of the Kansas State Board of Health, attended a five-week course in field epidemiology at the Public Health Service Communicable Disease Center in Atlanta recently.

A talk on medical hypnosis was given by **Dr. C. Ray Athey,** Wichita, at the annual convention of the Kansas Schools of Student Nurses Association in Pittsburg last month.

Dr. Edwin P. Deal, Pretty Prairie, has been employed by the commissioners of Reno County as county physician.

Dr. Calvin J. Zerwick, a diplomate of the American Board of Surgery, moved to Kansas recently and is now practicing in Arkansas City. He recently completed a course at the Sloan-Kettering Institute of the Cornell University Medical College under a research fellowship.

Dr. Charles W. Graham, radiologist at St. Thomas Hospital, Colby, gave an explanation of a radiologist's work at a recent meeting of the Colby Lions Club.

"Diagnostic X-rays" was the subject discussed by **Dr. E. M. McCusker,** Halstead, at a recent meeting of the Harvey County Medical Assistants Society in Newton.

Dr. Donald D. Dieter, former Salina surgeon, is now practicing in Eustis, Florida, as a member of the staff of the Eustis Clinic.

Dr. H. A. Anderson, Wichita, was elected to membership in the Clinical Orthopedic Society at the organization's meeting in Denver, October 2-4.

Dr. Vernon E. Wilson, associate dean of the University of Kansas School of Medicine, was one of the speakers at a youth health conference held in Concordia last month.

A physician who has been practicing in Stafford during the absence of **Dr. O. W. Longwood, Dr. Howard Gard,** is now serving in the Navy and expects to be stationed at Pearl Harbor for two years.

Dr. Douglas Ferraro, formerly of Providence, Rhode Island, is now associated with the Lattimore-Fink Laboratories in Topeka.

Dr. Robert H. Riedel, of the Kansas State Board of Health, has been named director of the Division of Local Health Services for the board.

A new physician in Minneola is **Dr. William James Porter,** now associated in practice with **Dr. D. L. Richardson.** Dr. Porter received his medical degree from the University of Kansas in 1951, served his internship at St. Joseph Hospital, Kansas City, Missouri, and has since been in practice in Independence, Missouri, specializing in obstetrics and gynecology.

Dr. Frances Schiltz recently became director of the American Red Cross Blood Bank in Wichita.

A talk on ethics was given by **Dr. William J. Reals,** Wichita, at the October meeting of the Cowley County Medical Assistants Society in Winfield.

DEATH NOTICES

John Raymond Shumway, M.D.

Dr. John Raymond Shumway, 80, Pleasanton, died at a Fort Scott hospital on October 2 after a long illness. A graduate of the Kansas City Medical College, Dr. Shumway practiced in Home City before moving to Pleasanton in 1917. He retired more than two years ago after suffering a stroke.

Paul Ernest Koerber, M.D.

An 82-year-old physician, Dr. P. E. Koerber, Russell, died there on October 6 after having been hospitalized more than two years. He had practiced in Russell from 1918 until poor health forced his retirement. A native of Germany, he was graduated from the University of Munich. He established his first practice in this country in Nebraska in 1899. He had been an honorary member of the Central Kansas Medical Society since 1943.

Frank A. Kinnamon, M.D.

Dr. F. A. Kinnamon, 79, Concordia physician for 34 years and Cloud County coroner and health officer for the past 15 years. died on October 9 after suffering a heart attack. A graduate of Kansas Medical College in 1913, he practiced in Jewell City for 11 years before opening his office in Concordia. For a 12-year period he was a member of the Concordia Board of Education.

Seven Kansas physicians became fellows of the American College of Surgeons at a meeting held in Chicago last month. They are: **Dr. Don R. Miller** and **Dr. Earl C. Sifers** of Kansas City; **Dr. Homer B. Russell,** Great Bend; **Dr. George J. Millet,** Larned; **Dr. John G. Esch,** Pittsburg; **Dr. Robert E. McCall, Jr.,** Wadsworth, and **Dr. William R. Miller,** Wichita.

Dr. John B. Jarrott, Hutchinson, discussed orthopedic surgery and disability ratings at a recent meeting of the Kansas Claims Association in Hutchinson.

An award was recently presented to **Dr. H. Preston Palmer,** Scott City, in recognition of his 15 years of service to the selective service program in his tri-county area.

Dr. Ralph S. McCants, formerly with the Lattimore-Fink Laboratory in Topeka, has moved to Sayre, Pennsylvania, and is there associated with the Guthrie Clinic.

A paper by **Dr. DeMerle E. Eckart,** Hutchinson, "Sodium Pentothal Solution, an Adjuvant in the Treatment of Acute Alcoholism," published originally in the JOURNAL OF THE KANSAS MEDICAL SOCIETY in August 1954, will be included in a collection of papers at the Library of the Yale Center of Alcohol Studies Archives of Alcohol Literature. The collection is assembled and maintained for research purposes.

COUNTY SOCIETIES

Members of the Shawnee County Medical Society entertained their wives at a dinner meeting at the Hotel Jayhawk, Topeka, on October 6. The program was presented by a panel of four speakers who discussed legal adoptions: Judge E. Newton Vickers; Dr. Edward D. Greenwood, coordinator of training in child psychiatry at the Menninger Foundation; Miss Marie Scott, social worker for the Kansas Children's Home and Service League, and Miss Ruth Elsenratt, of the Child Welfare Division, Kansas State Department of Social Welfare.

Honored at the meeting was Dr. W. L. Warriner on the occasion of his 96th birthday. Dr. Warriner is thought to be the oldest practicing physician in the state.

Dr. Robert Weber, assistant professor of medicine of the University of Kansas School of Medicine, was guest speaker at a meeting of the Sedgwick County Society held in Wichita on October 7. He discussed staphylococcus infection and the use of antibiotics.

The Auxiliary in Cowley County was entertained by the medical society at a dinner meeting at the Winfield Country Club last month. Separate sessions were held later with Dr. Averill Stowell, Tulsa, addressing the physicians on whiplash injuries of the neck.

Thirty-eight physicians attended a meeting of the Central Kansas Medical Society in Russell last month. Two physicians from the University of Kansas School of Medicine presented the program, Dr. Frank Masters speaking on "Facial Trauma" and Dr. Lynn Litton on "Injuries of Joints with Stress on Athletic Injuries."

Dr. Arnold H. Baum, president of the Ford County Medical Society, presented an honorary membership in the society to Mr. Milburn Stone, television actor who plays the part of "Doc" Adams in the "Gunsmoke" cast, when a group of television stars visited Dodge City last month on a "Return to the Santa Fe Trail" junket. Dr. Thomas P. Butcher, president, represented the Kansas Medical Society at the event.

Dr. Roscoe F. Morton, Arkansas City, was elected president of the Cowley County Medical Society at a meeting held in September. Other officers are: Dr. Carroll D. Behrhorst, Winfield, vice-president, and Dr. Bruce G. Smith, Arkansas City, secretary-treasurer.

The Riley County Medical Society has gone on record as favoring a bond issue for funds to construct a home for the aged of the county.

Physicians at the Schilling Air Force Base Hospital, Salina, were hosts at the September meeting of the Saline County Medical Society. The program consisted of a panel discussion on acute chest injuries with Dr. William E. Mowery, Salina, as moderator. Panel members included Dr. Dan Greer, Cheyenne, associate professor of surgery at the Colorado University Medical Center; Dr. Ben Eiseman, Denver, professor of surgery at the same school; Dr. Bernard Brungardt, Salina, and Dr. G. Sherman Ripley, Jr., Salina. A social hour and dinner completed the day's program.

The Bourbon County Medical Society was made the beneficiary of an estate estimated to total at least $20,000, according to an attorney who has filed for probate the will of Mrs. Maude Carpenter LePard, a former Bourbon County resident who died last month. The will provides that the money is to be used by the medical society, at its discretion, for children of Bourbon County.

BOOK REVIEWS

Diseases of the Esophagus. By J. Terracol, M.D., and Richard H. Sweet, M.D. Published by W. B. Saunders Company, Philadelphia. 682 pages, illustrated. Price $20.

With the French author's understanding cooperation, Dr. Sweet has rearranged and added to the translated 1951 second French edition of Professor Terracol's "Les Maladies de L'Esophage." The American edition thus represents the best features of the endoscopist's original volume, blended nicely with Dr. Sweet's extensive knowledge and experience in esophageal surgery. The result is a well documented, thorough, detailed (but not stuffy), methodically presented, clearly written and adequately illustrated study of the esophagus, its diseases, and their treatment.

Besides Professor Terracol, some 11 French authors contributed significantly to various sections of the second French edition. Moreover, the unusually broad reference base on which the volume is constructed is evidenced in the bibliography's 72-page length. The bibliography itself is probably the finest collection of references to the literature on the esophagus available anywhere, and its usability to the American reader is only slightly hampered by the fact that the references—even to the American literature—have been left un-retranslated from the French.

The 408 illustrations include 85 new ones with many roentgenographic reproductions and anatomical drawings, as well as operative sketches, many of these from Dr. Sweet's previous publications. Three full color plates present multiple views of the normal and (especially) the pathological esophagus.

So well planned and written is this book that it is difficult to single out individual chapters for comment. However, the chapters dealing with malignant tumors and their treatment and with esophagospasm and megaesophagus (achalasia) reflect intense interest on the part of the authors.

The chapters on anatomy, physiology, roentgen examination of the normal esophagus, and on esophagoscopy and esophageal biopsy are unusually thorough and detailed. Those on congenital malformations and alterations in position, changes in contour, and compression give proper stress to embryology. Diverticula and abnormalities of the vein are thoroughly discussed and their surgical treatment is well illustrated. The relatively short but concise sections on acute corrosive esophagitis and cicatricial stenosis should be read by all physicians seeing such cases at any time.

Other chapter titles include: instrumental exploration (bougienage); atony and paralysis; acute and chronic non-specific esophagitis; esophageal abscess; phlegmonous esophagitis, periesophagitis and mediastinitis; non-specific ulcerations; specific infections; disorders associated with diseases of the skin and mucous membrane; esophageal substitution; acquired communications with the air passages (esophagotracheal and esophagobronchial fistulae); rupture and external injury; instrumental perforations (endoscopic injuries, etc.); foreign bodies; extraction of foreign bodies from the esophagus, and benign tumors.

An appendix supplies diets for patients with various degrees of obstructive dysphagia, derived from the *Diet Manual of the Massachusetts General Hospital.*

Diseases of the Esophagus is a must for every general reference library and should be a helpful addition to the bookshelf of every practitioner dealing specifically with the esophagus in any fashion.—*B.M.P.*

A Method of Anatomy. Sixth Edition. By J. C. Boileau Grant. Published by Williams and Wilkins Company, Baltimore. 879 pages. Price $11.

The sixth edition of this outstanding *Method of Anatomy* has been completely revised throughout. Considerable new material has been added, especially dealing with matters of clinical importance such as lubrication of joints, electromyography, mechanics of the foot, the neurovascular hila of muscles, the lymphatics, the eruption of teeth, and newer knowledge concerning the fusion times of epiphyses. There are 34 new illustrations. One of the new features is the cross references which eliminates much of the repetition found in earlier editions.

The new international anatomical nomenclature replaces the old B. N. A.; where these terms differ, the supplanted term is given in brackets. This is done to pass over gently and effectively the transition that inevitably must occur. To bring cosmos out of chaos is truly a great step forward. This is done by reducing 30,000 words used throughout the anatomical world to 5,000. This was accomplished by following the simple rules listed below:

1. Each part carries only one name.

2. Each term is in Latin.

3. It is expressed in terms as short and simple as possible.

4. There is no speculative interpretation in the terms.

5. Related terms are used throughout, such as, femoral artery, femoral vein, nerve.

6. Adjectives are used as opposites such as, major-minor, superior-inferior.

One can say that throughout the sixth edition the author has given to the American student a truly "reasonable" approach to anatomy. By diagram and line drawings of regions of the body, Dr. Grant has admirably presented this difficult science. His atlas supplements the "method."

For the beginner this is a delightful guide. For a seasoned practitioner the "method" not only holds its claim but is a ready guide to complicated areas easily lost to memory if not continually used.

It is fitting that I quote the first paragraph of the first edition.

"The study of human anatomy may be attempted in either of two ways. One consists in collecting facts and memorizing them. This demands a memory which is wax to receive impressions and marble to retain them. Even so endowed a student will not master the infinite complexities of the subject. The other way consists in correlating facts, that is, studying them in their mutual relationships. This leads inevitably to the apprehending of the underlying principles involved, and the 'raison d'être' of such relationships. The student will thus learn to reason anatomically and will find the acquisition of new and related facts an easier task. It is the purpose of this book to lead the student to approach the subject from this viewpoint, and it involves certain departures from tradition."

ANNOUNCEMENTS

Part I examinations, American Board of Obstetrics and Gynecology, January 16, 1959. Case abstracts must be submitted before examination. Bulletins outlining requirements available from Dr. Robert Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

American College of Chest Physicians offers three cash awards, $500, $300 and $200, for winning essays on diagnosis and treatment of chest diseases. Contest open to undergraduate medical students. Contest closes April 15, 1959. Write the College, 112 East Chestnut Street, Chicago 11, Illinois.

Postdoctoral research scholarships in the field of neuromuscular diseases available through Sister Elizabeth Kenny Foundation, 2400 Foshay Tower, Minneapolis 2, Minnesota. Appointments made annually. Stipends for five-year periods at rate of $5,000 to $7,000 per year.

Postgraduate course, "Reconstructive Surgery of the Nasal Septum and External Nasal Pyramid," White Memorial Hospital, Los Angeles, January 6-16 with week-end free. Sponsored by College of Medical Evangelists and Southern California School of Medicine. Course directed by Dr. Maurice H. Cottle, Chicago Medical School, with cooperation of American Rhinologic Society. Information available from Dr. Leland House, 435 South Soto Street, Los Angeles 53.

Symposium, "Treatment of Lymphomas and Leukemias," Skirvin Hotel, Oklahoma City, December 6, 9:00 a.m. until 5:00 p.m., under sponsorship of American Cancer Society, Oklahoma Division. Speakers: Dr. William Dameshek, Boston; Dr. Leon Dmochowski, Houston; Dr. Leon O. Jacobson, Chicago; Dr. Wayne Rundles, Durham, North Carolina.

International College of Surgeons, 24th annual congress, Palmer House, Chicago, September 13-17, 1959.

Second World Conference on Medical Education, sponsored by World Medical Association, Chicago, August 30-September 4, 1959. Theme—"Medicine, a Lifelong Study."

National Institute of Mental Health, Bethesda 14, Maryland, offers grant support for training program for physicians for two purposes: (1) to foster development of postgraduate training in psychiatry and (2) to provide support for physicians in practice who wish to become psychiatrists. Stipends available up to maximum of $12,000 per year. Direct inquiries to Dr. Seymour D. Vestermark, Chief, Training Branch.

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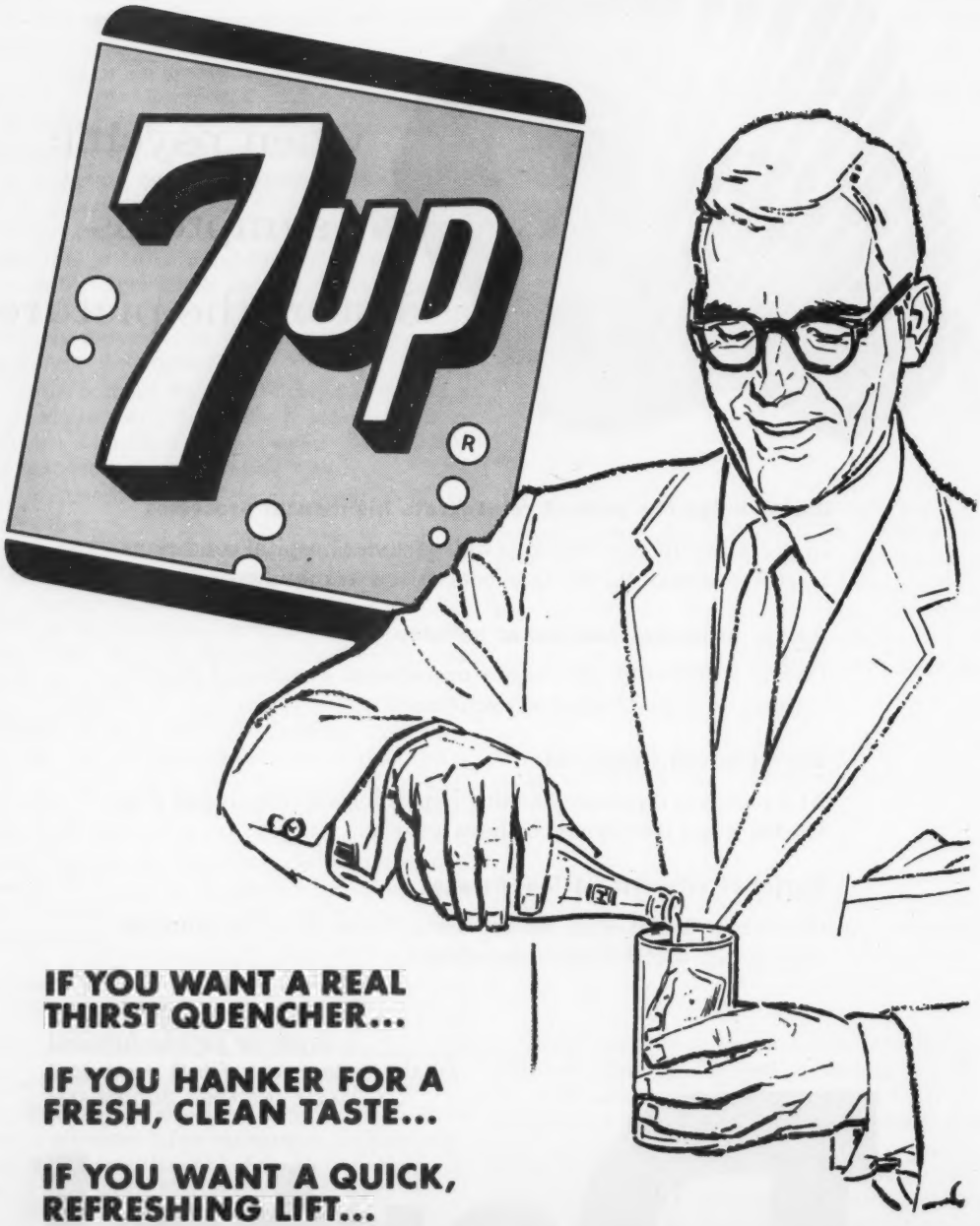
*A Symposium on the Pharmacologic Effects of Dartal on the Liver, Chicago, Searle Research Laboratories, Feb. 7, 1958.



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*Finkerty, F. A. Jr.: New York State J. Med. 57:2987 (Sept. 15) 1957.

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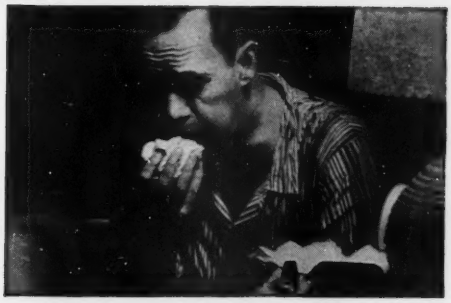

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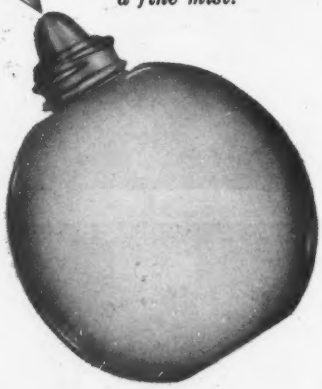

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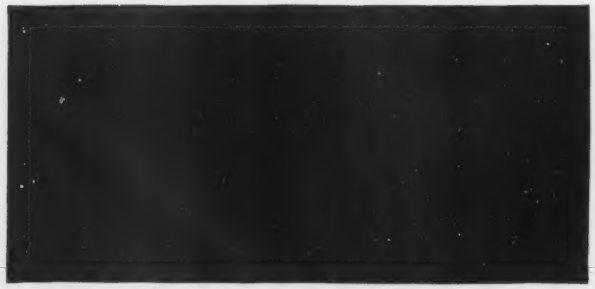

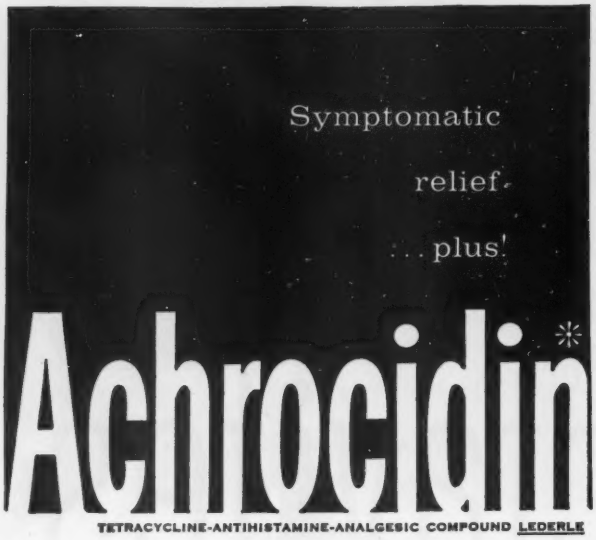

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1. *Friedlander, H. S.: The role of ataraxics in cardiology. Am. J. Card. 1:395, March 1958.*
2. *Shapiro, S.: Observations on the use of meprobamate in cardiovascular disorders. Angiology 8:504, Dec. 1957.*

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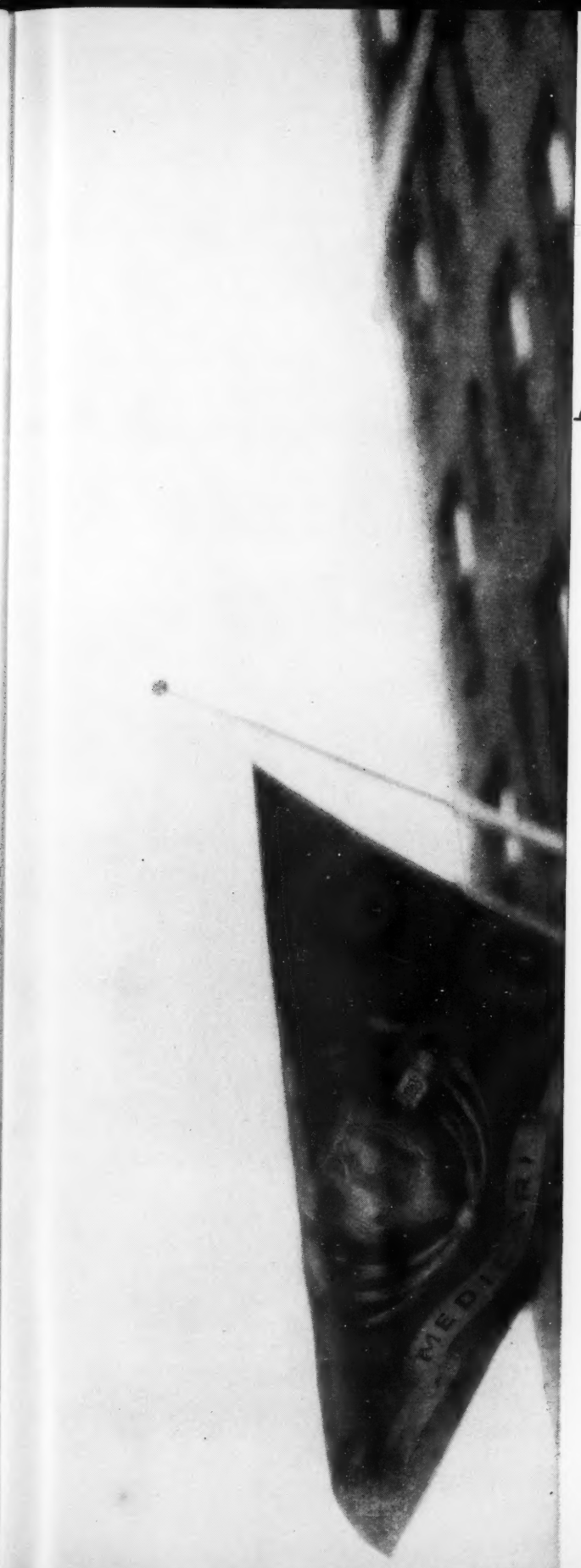

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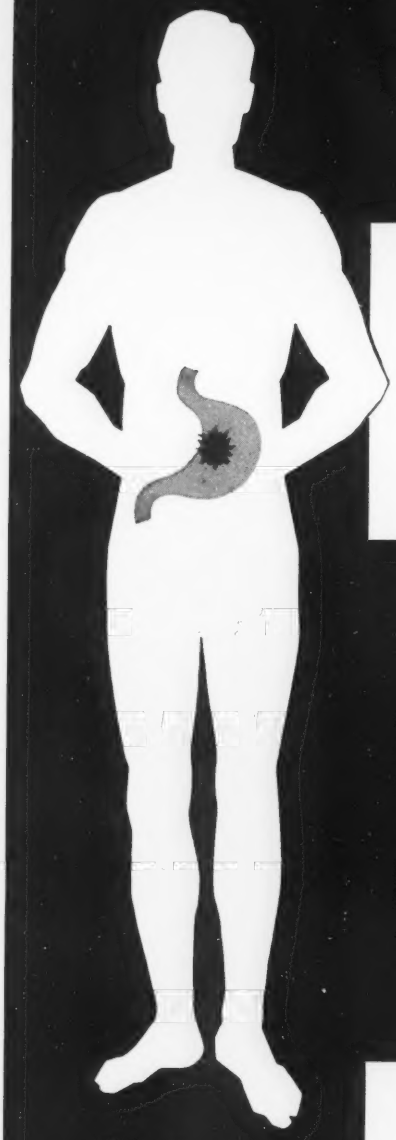

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Acetylsalicylic acid	325 mg.
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References: 1. Spies, T. D., et al.: J.A.M.A. 159:645, 1955. 2. Spies, T. D., et al.: Postgrad. Med. 17:1, 1955. 3. Gelli, G., and Della Santa, L.: Minerva Pediat. 7:1456, 1955. 4. Guerra, F.: Fed. Proc. 12:326, 1953. 5. Busse, E. A.: Clin. Med. 2:1105, 1955. 6. Sticker, R. B.: Panel Discussion, Ohio State M. J. 52:1037, 1956.

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references:
1 Grieble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958
2. Editorial: *New England J. Med.* 258:48-49, 1958.

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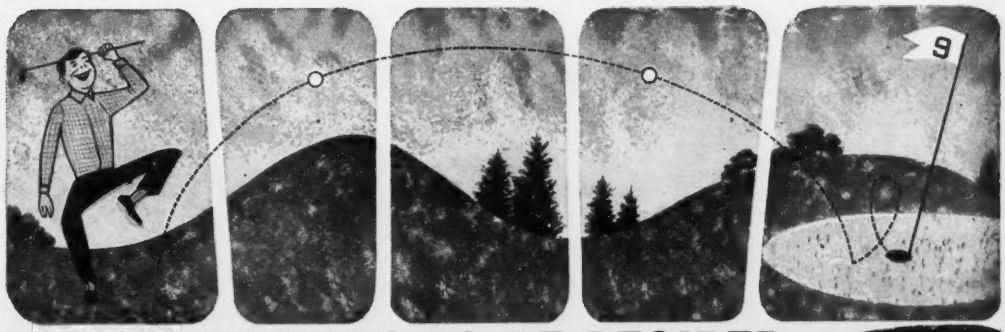

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Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

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Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

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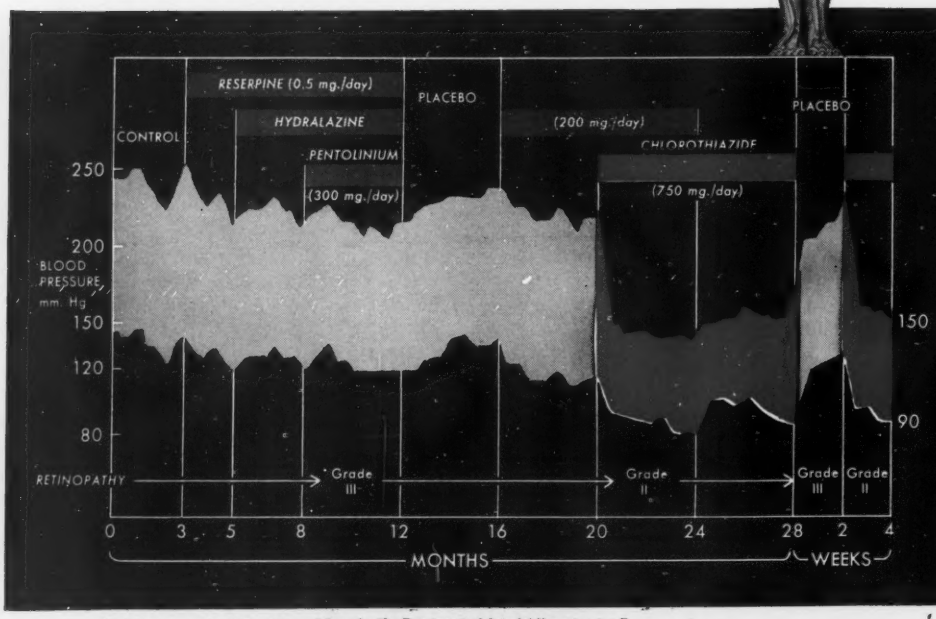

In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension," Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8:1, September, 1957.

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1. Welsh, A. L., and Ede, M.: J.A.M.A. *166*:158, 1958.
2. Bleiberg, J.: J.M. Soc. New Jersey *53*:37, 1956.
3. Abrams, B. P., and Shaw, C.: Clin. Med. *3*:839, 1956.
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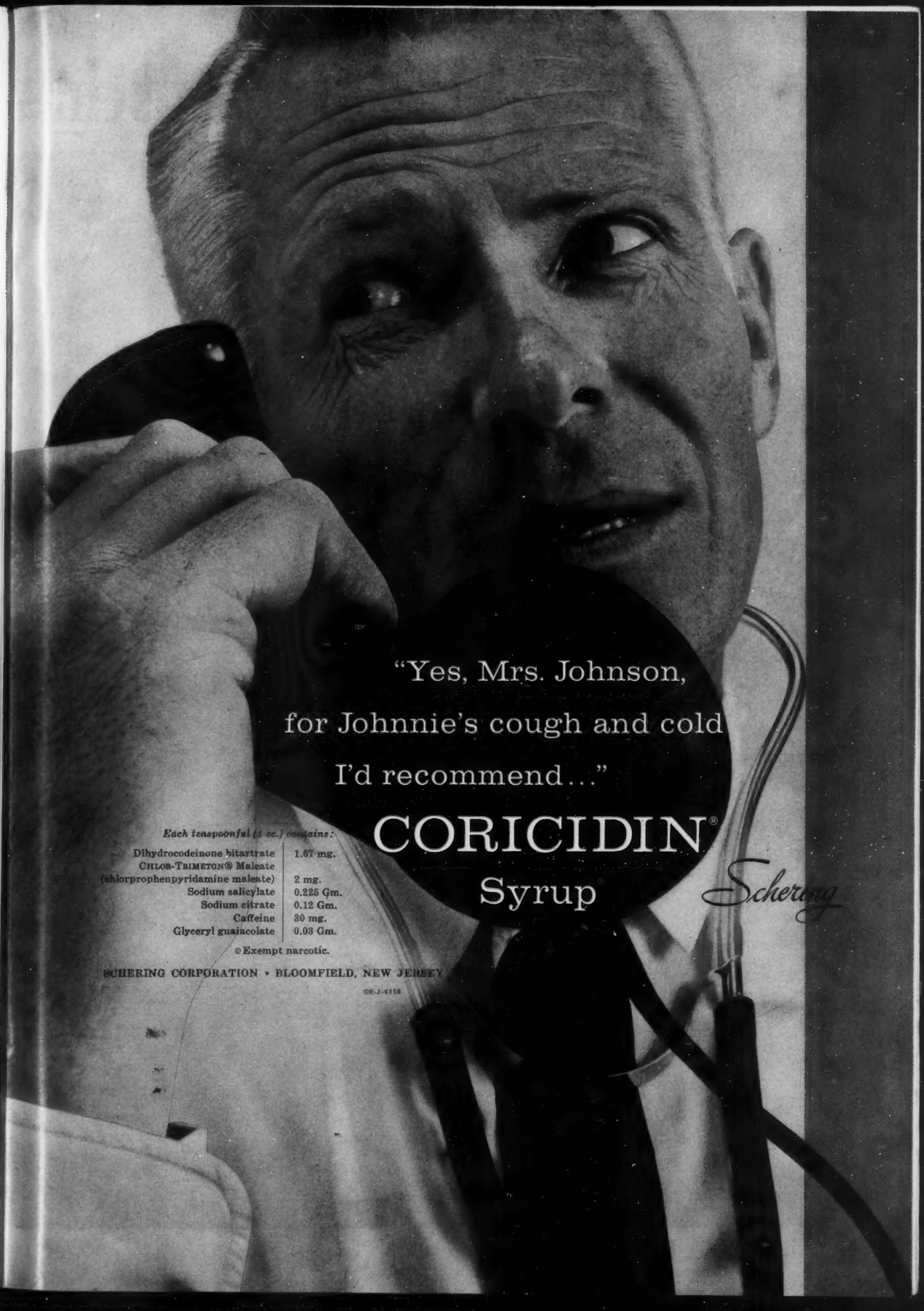
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REFERENCES: 1. Carlozzi, M.: Ant. Med. & Clin. Therapy 5:146 (Feb.) 1958. 2. Welch, H.; Wright, W. W., and Staffa, A. W.: Ant. Med. & Clin. Therapy 5:52 (Jan.) 1958. 3. Marlow, A. A., and Bartlett, G. R.: Glucosamine and Leukemia. Proc. Soc. Exp. Biol. & Med. 84:41, 1953. 4. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 5. Nathan, L. A.: Arch. Pediat. 75:251 (June) 1958. 6. Cornbleet, T.; Chesrow, E., and Barsky, S.: Ant. Med. & Clin. Therapy 5:328 (May) 1958. 7. Stone, M. L.; Sedlis, A., Bamford, J., and Bradley, W.: Ant. Med. & Clin. Therapy 5:322 (May) 1958. 8. Harris, H.: Clin. Rev. 1:15 (July) 1958.

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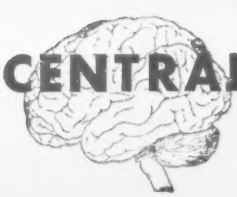

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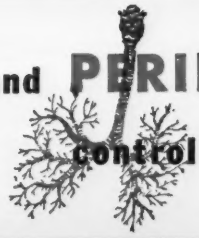

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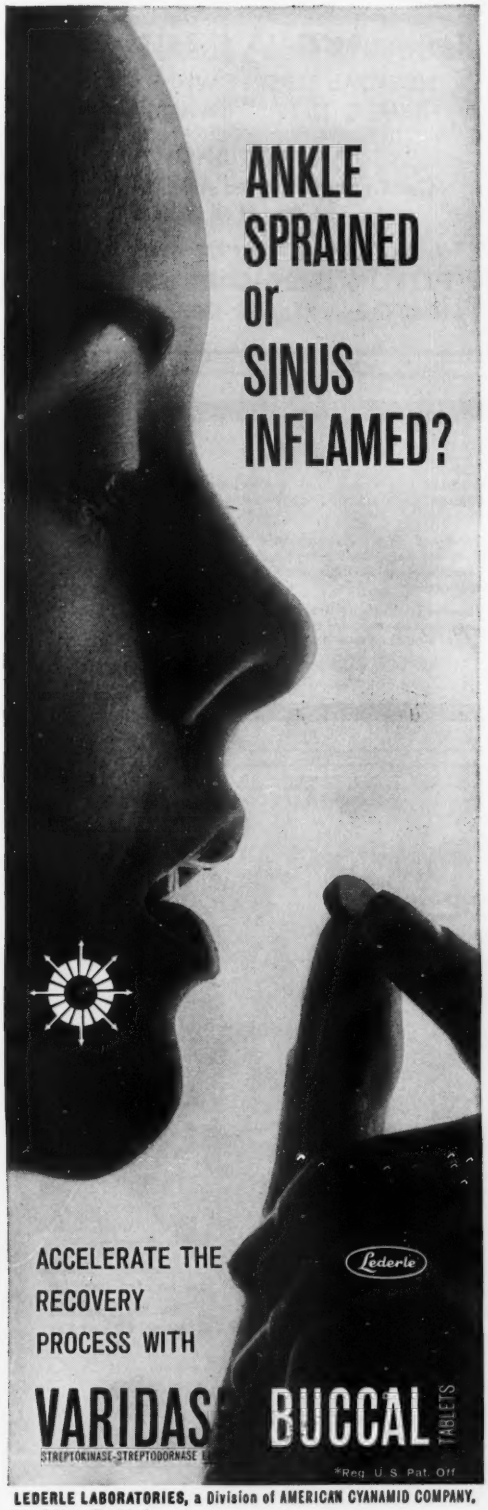

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Source—Meyer, O. O.: Northwest Med. *53*:1006, 1954.

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*Bauer, H. G.; Seegers, W.; Krawzoff, M., and McGavack, T. H.: New York J. Med. *58*:520 (Feb. 15) 1958.

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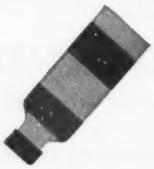

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